

U. S. S. Saratoga—Largest Ship to Transit Panama Canal—Clearance in Locks a Matter of Inches

Public Opinion Makes Congress Consider Merchant Marine Needs

By Lynne M. Lamm

NATIONAL legislators are waxing eloquent in their statements on the question of merchant marine legislation and no one, at the time of this writing, knows just what this congress is going to do about it. There is one thing certain and that is that the President of these United States, one Calvin Coolidge, is for taking the government out of the merchant marine. However, he was for this, before the so-called Jones bill, passed the senate, much to the surprise of everyone, probably including the senator from Washington himself.

Should the Jones bill, "to further develop an American merchant marine, to assure its permanence in the transportation of the foreign trade of the United States, and for other purposes," be presented to President Coolidge, there is no question but what he would veto the bill. It is almost directly opposite to his views. On the other hand there are those who say that this bill can be so amended that it might meet the wishes of the President. This, however, seems doubtful in view of his very decided statements on the subject.

Not only has the Jones bill been passed by the senate since the last issue of MARINE REVIEW but

Representative Wallace H. White, Jr., of Maine, chairman of the committee on merchant marine and fisheries of the house, has introduced his bill "to create, develop, and maintain a privately owned American merchant marine adequate to serve trade routes essential in the movement of the industrial and agricultural products of the United States and to meet the requirements of the commerce of the United States; to provide for the transportation of the foreign mails of the United States in vessels of the United States; to provide naval and military auxiliaries; and for other purposes." This bill, of course, together with the Jones bill, has been referred to White's own committee and before this issue of MARINE REVIEW is received by its readers hearings will have been begun by the committee. They were scheduled to begin Feb. 27.

The only other merchant marine bill which has been introduced in the house was that by Representative Wood, of Indiana, which was discussed at some length in the January issue. The White bill, while not an Administration measure, seems to come the nearest to being what the President is after of any bill now in congress. The main difference between the Wood and White bills is

that the former bill provides for taking care of cost differentials by the government while the White bill does not touch that subject directly. White provides for mail contracts and for cheap interest rates.

The Jones bill as it passed the senate and as it is now pending before the house committee in complete form is as follows:

That the policy and the primary purpose declared in section 1 of the merchant marine act, 1920, is hereby confirmed.

Sec. 2. The United States shipping board shall not sell any vessel or any line of vessels except when in its judgment the building up and maintenance of an adequate merchant marine can be best served thereby, and then only upon the affirmative unanimous vote of the members of the board duly recorded.

Sec. 3. In addition to ordinary repairs to vessels incident to their regular operation, the board may recondition and improve vessels owned by the United States and in its possession or under its control, so as to equip them adequately for competition in the foreign trade of the United States.

Sec. 4. The necessity for the replacement of vessels owned by the United States and in the possession or under the control of the board and the construction either by the board or by private companies or corporations owned and controlled by citizens of the United States, of additional up-to-date cargo, combination cargo and passenger, and passenger ships, to give the United States an adequate merchant marine, is hereby recognized and the board is authorized and directed to present to congress from time to time, recommendations setting forth what new vessels are required, together with such proposals, if any, which have been made to the board by private companies or corporations owned or controlled by citizens of the United States for the replacement of these vessels and their permanent operation under the United States flag in foreign trade, and the estimated cost thereof, to the end that congress may, from time to time, make provision for replacements and additions. All vessels built by the board shall be built in the United States, and they shall be planned with reference to their possible usefulness as auxiliaries to the naval and military services of the United States.

Sec. 5. The appropriations necessary to carry out the provisions and accomplish the purpose of this act are

hereby authorized: *Provided*, That all offices, employments, and positions under the United States shipping board and the Fleet corporation except offices and employments calling for the exercise of executive initiative or discretion, and positions calling for manual or menial services shall be subject to the provisions of the federal laws relating to the federal classified civil service.

Sec. 6. All acts and parts of acts inconsistent with this act are hereby repealed to the extent of any such inconsistency.

Sec. 7. That in the allocations of the operations of the ships, the shipping board shall distribute them as far as possible and without detriment to the service among the various ports of the country.

To Promote Private Ownership

Inasmuch as there is considerable interest in the White bill at this time and that it will probably be under discussion for some time to come it may be worth while to consider its provisions in some detail.

"This bill," said Mr. White discussing his new bill with the writer, "offers various proposals as alternatives to permanent governmental operation of merchant ships. It recognizes that there are existing original cost and operating differentials against American ships in foreign trade and that these must be offset by governmental aid in order to put American ships upon a competitive basis with foreign ships. It proceeds upon the assumption that the American people prefer private operation of ships to governmental ownership and operation and that they are willing to pay reasonable amounts to effect the transfer of existing governmental lines to private hands and to insure successful operation of these and new vessels by private operators."

"Citizens of other countries," continued Mr. White, "have built great ocean liners through the aid of liberal loans from their governments at low rates of interest. What others have done we should be willing to do and as our need for a merchant marine is as great as the need of any other nation, we should be as liberal in this regard as others have been. It is difficult, because of the handicaps which American ships face in the foreign trade, to make loans from private sources for ship construction in this country. A provision of the bill seeks to make available the necessary funds upon advantageous terms. Existing law and the provisions of one of the sections of the bill throw all possible security around these loans

and insure repayment to the government.

"With respect to many routes the shipping board, in the government's behalf, is now hiring someone to undertake this work, but upon a contract in which the government assumes all risk, under which there is no provision for replacement of worn-out ships, under which there is no real incentive upon the part of the agent to efficient operation, and under which the agent or operator gets his commission without regard to the losses sustained by the government from the maintenance of the service.

"With respect to cargo services now being operated by the board, it is provided that the contract price shall not exceed the annual average of the operating losses sustained by the particular line for the period of the three preceding years. With respect to other routes which the board might determine to be necessary, it is provided in the bill, that the contract price shall not exceed an amount which would overcome the differential between the particular American ships to be operated on the route and comparable foreign ships on the same or a like route.

"Under this form of aid the cash outlay of the government would be no more than its present operating losses, or, in the case of new lines, no more than the differential against the American ship as determined by the board. This particular section encourages the sale of existing lines and would bring to the government the purchase price of the ships it now operates instead of the ships. It would result in an undertaking of the private citizen to meet replacements and additions instead of the government's own obligation to meet this burden at some time in the not distant future.

"This form of contract service is not a subsidy in the ordinary sense of that term. It is a payment for definite shipping services determined by the board to be in the public interest. If such service is in the common interest, why should not the board follow the custom applicable to all circumstances in which the government desires work to be undertaken or a duty to be performed that can be better done under contract with private interests than by the government itself and contract with citizens therefore?

"It is recognized," Mr. White continued, "that only ships of higher speed are properly usable for mail transportation in which speed and certainty of movement are the very essence. It recognizes also that as the speed of a vessel is increased the

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cost of operation is greatly added to, and so the payments authorized in the bill are on a graduated scale based primarily upon speed.

"In addition to the mail service performed under the contracts provided for in the bill, it is sought to make the ships utilized for this purpose available for other governmental uses. Cruisers, transports and scout ships are as essential a part of a fleet as battleships themselves. The bill provides, therefore, that all of the vessels of the higher speeds receiving contracts under certain provisions of the bill shall be readily convertible into naval and military

auxiliaries and shall be approved in construction by the secretary of the navy before contracts shall be made for their services.

"Under both contracts for cargo services and for mail services there are provisions requiring the ships to be of American registry; manned substantially by American officers and crews; providing for the carrying of cadets to be instructed in seamanship; for taking over by the government in time of emergency, and other general provisions believed to be in the government's interest.

"This legislation does not seek to deprive the shipping board of author-

ity to maintain and to operate the essential lines established by the board. It does endeavor to offer inducements to private interests to acquire and operate these and other lines. If citizens of the United States are not secured to operate essential services, the bill expressly reaffirms the authority and obligation of the board to maintain the routes. The cost to the government under the terms of this bill will be less than the present burden to the treasury. It will save in the years to come many millions."

At any rate, congress seems to be stirred up about the marine.

A Shipmate's Estimate of the Admiral

At Testimonial Dinner to Rear Admiral Charles P. Plunkett
By Rear Admiral Bradley A. Fiske, U. S. N. Retired

ONE morning when I was a lieutenant on board the old frigate BROOKLYN in 1886, I heard a tremendous voice coming from the depths of the steering engine room that said to somebody. "If you do that again I'll thump you." Inquiry developed the fact that the tremendous voice belonged to a midshipman, named Plunkett, just graduated from the Naval Academy. I realized that this young man must be admonished. So I admonished him.

Eleven years later, that is in 1897 and 1898, Plunkett and I cruised together in the little PETREL for two years in Asia. As a shipmate, he was always interesting and sometimes surprising. I remember one day when we were coaling ship in the PETREL. As you may know, "coaling ship" in those days was an excessively disagreeable and dirty performance. The coal was hoisted over the sides of the ship in large bags, and dumped on deck, and later dumped down the coal chutes into the bunkers. On this occasion, Plunkett was officer of the deck; and very handsome he looked with his tall figure and close fitting uniform, his sword belt and white cap and gloves. In the discharge of his duties he stepped forward in the port gangway, to survey certain operations, when suddenly a sailor standing on the hammock nettings, clumsily threw a coal bag in such a way that it hit Plunkett in the head, and knocked him down into a heap of soft black coal. Now I think that any of us, put in a

similar predicament, would have shown some very bad temper; and if in Plunkett's position of authority would have punished the sailor severely. But not Plunkett. He rose from the coal heap with the same good natured grin that you see on his

certain shy and gentle reticence, with which New Yorkers have become acquainted during the last five years. At times when heated arguments arose in the wardroom, the echoes of his reticence could be heard all over the little ship. At the battle of Manila bay, the peculiar Plunkett brand of reticence was much in evidence. I know; because his division was directly under me at my station in the fore top, and I heard all he said and saw all he did. And I will tell you now in confidence that the principal cause of the defeat of the Spanish fleet was the language that Plunkett used. The Spaniards simply couldn't stand it.

After the war he went through the usual routine duties of a navy officer in time of peace. But with Plunkett no duty was ever a routine duty. Every duty was to be done with every bit of energy and intelligence and loyalty that he possessed. He rose gradually in rank, carrying with him always the respect of everybody and the affection of most. But it was not until he became the captain of the then new dreadnought, NORTH DAKOTA, and revolutionized its entire organization, placing it on a battle basis, a change at once adopted by the navy, that he was recognized by the navy as an officer of superior capacity, especially in that inestimable quality called leadership.

In recognition of this, he was made director of target practice of the navy and placed in charge of the office of gunnery training in the navy department. In that position he found full scope for his leadership,

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An American Admiral

On Feb. 15 at the Waldorf Astoria hotel, New York City, there was held an imposing testimonial dinner in honor of Rear Admiral Charles P. Plunkett, who on that day had attained simultaneously the age of 64 and the hour of his retirement from active duty. For the past 5 years the admiral has been commandant of the third naval district including the Brooklyn navy yard. His impetuous speech may at times have led him into what timid souls, who do not believe in public frankness, might call indiscretions; but he would be lacking in spirit who belongs to the sea and that intangible group which constitutes the personnel of our marine industry afloat and ashore, who does not feel for this American Admiral a genuine affection and pride. Much oratory of a high quality attended this famous dinner; but we have chosen from all these speeches, that by Admiral Fiske for reasons which the reader will be quick to recognize.

face now, freed himself of coal dust as best he could and then walked aft, still grinning. Now to do a thing like that a man must be somebody very fine. Somebody very fine Plunkett has always been.

One of his characteristics was a

An address by Rear Admiral Fiske at the Testimonial dinner to Rear Admiral Charles P. Plunkett, held at New York, Feb. 15, 1928.



San Francisco Terminal of the American-Hawaiian Steamship Co.

American-Hawaiian Fleet Gives Dependable Coast-to-Coast Service

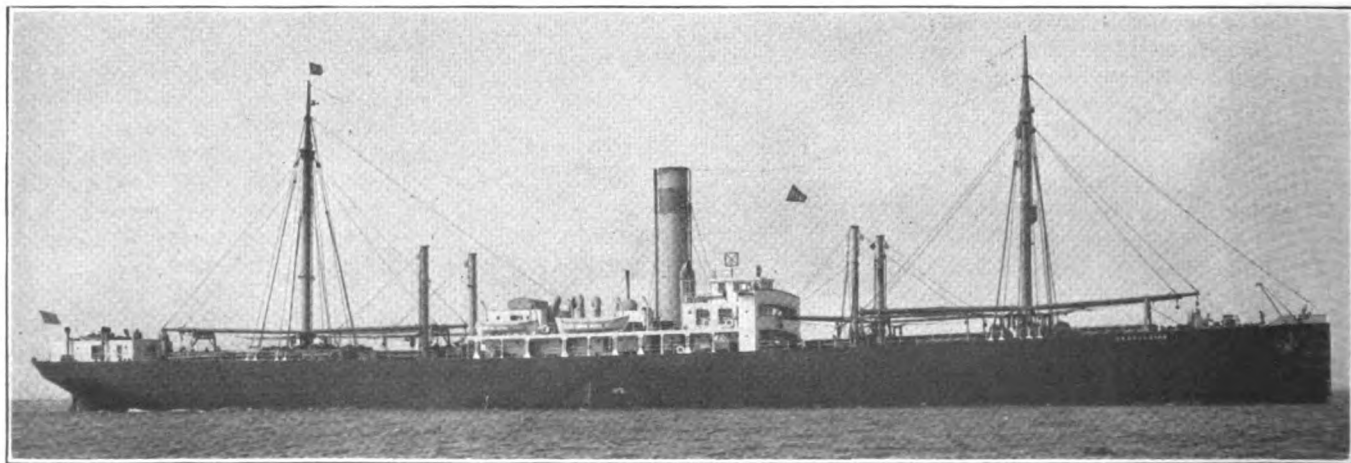
WITH the discovery of gold in California, hardly more than three-quarters of a century ago, began man's effort to establish means of communication between the East and West coasts of the United States. The famous clipper ships sailing around Cape Horn served well in their day in this development. Then before the Panama canal, came the great period of railroad building. It was but natural that both freight and passengers between the Atlantic and the Pacific should be car-

ried by rail. The sailing ship with its hundred-day voyage was entirely outclassed. However, where there is a waterway, transportation by ships, because cargo can be carried so much cheaper, becomes inevitable. So, in spite of our splendidly equipped railroads, transportation by water between the two coasts has grown to great proportions keeping pace with the increase in population and wealth.

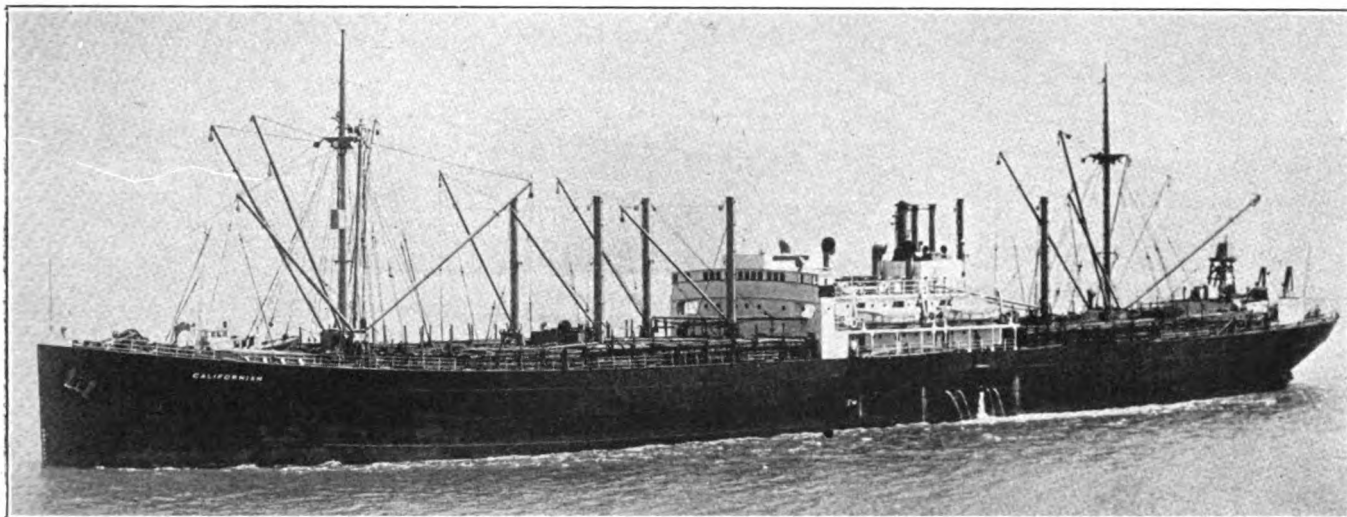
Steam vessels following the early sailing ships made the passage by way of the Straits of Magellan. After

the opening of the Panama railroad in 1855 many vessels traded to the Isthmus from ports on either coast, trans-shipping their cargoes at this point by rail.

Intercoastal commerce has grown to vast proportions and engaged in this traffic there are many ships and many companies, all American in accordance with our coastwise laws. The oldest of the coast-to-coast carriers is the American-Hawaiian Steamship Co. Its history begins in 1855 when a line of California clipper



Steamship Kentuckian—American-Hawaiian Steamship Co.



Motorship Californian—American-Hawaiian Steamship Co.

ships was established to provide a regular schedule service around Cape Horn. From this line founded and operated by early pioneers gradually emerged what is now known as the American-Hawaiian Steamship Co., one of the best equipped and most efficient companies engaged in this trade.

Line Founded By Pioneers

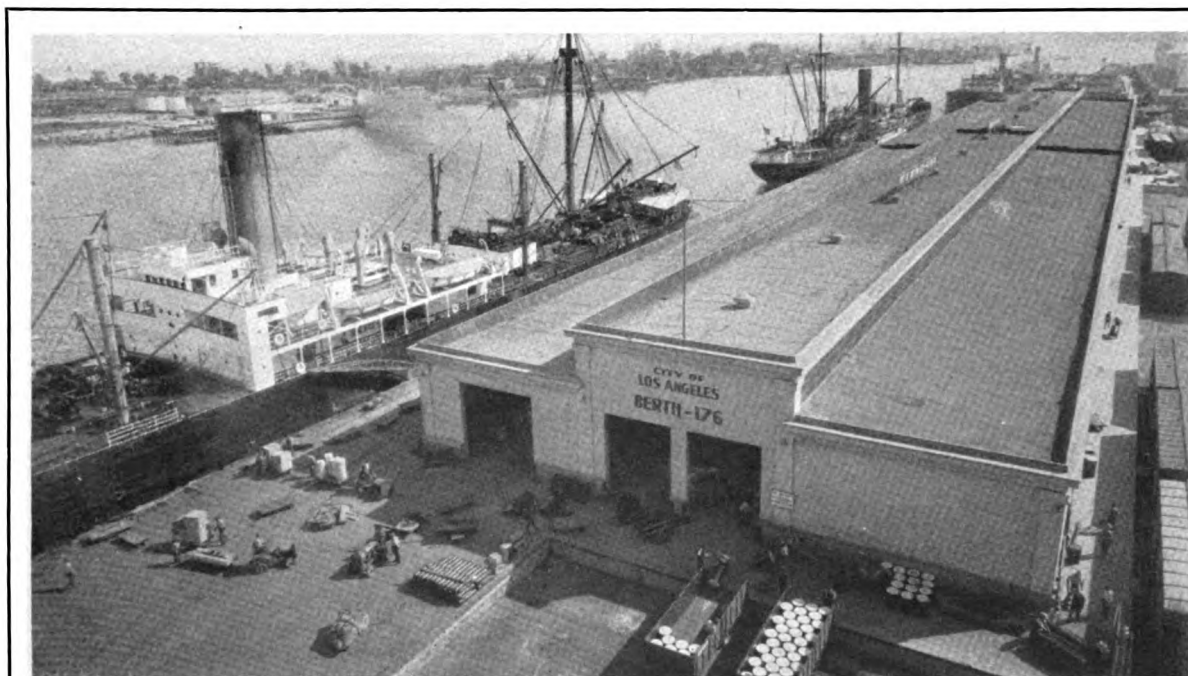
Some of the names connected with the beginning of this line are still associated with its activities. On the West coast there was for instance Williams, Blanchard & Co. and its successor Williams, Dimond & Co.

Another pioneer was Andronicus Chesebrough who became vice president when the line was formed under its present name. Prominent East coast shipping men were associated with the company from its origin. Among these companies were well known vessel operators such as Dearborn & Co. and Flint & Co. later, Dearborn & Lapham. And today Roger D. Lapham, son of one of the original organizers is president of the company.

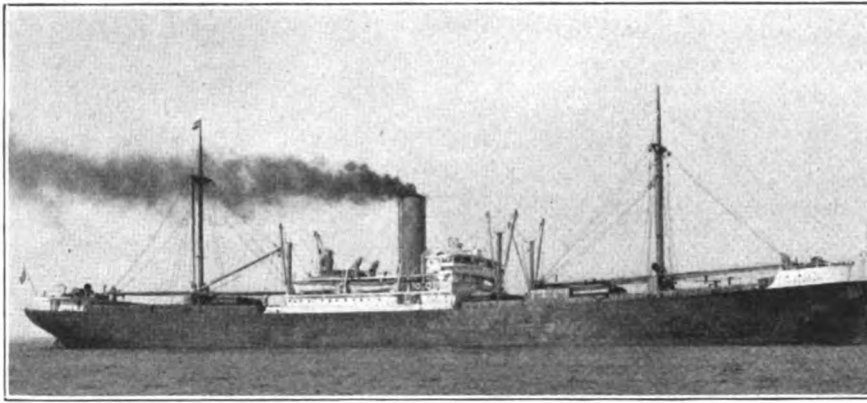
The sailing ship service around Cape Horn from 1880 to 1892 was successful. Then in 1893 the rate war between the transcontinental railroads

and the Panama Steamship Co. reduced rail rates for the subsequent several years to an equality with ship freight rates via the Horn. In spite of the profitless business which resulted, the line, greatly to the credit of George Dearborn and his associates, during the period from 1893 to 1900, maintained schedules regularly and gave the best possible service to the shippers of California and the north-west.

Even before 1900 it became apparent that the sailing ship in this trade had seen its best day and must sooner or later be superseded by the steamship. George Dearborn, the mov-



Los Angeles Terminal of the American-Hawaiian Steamship Co.



Steamship Oregonian—American-Hawaiian Steamship Co.

ing spirit in the sailing ship line, proposed that a line of steamships be built and placed in operation. Finally after a series of delays for various reasons including the Spanish American war, the American-Hawaiian Steamship Co. was incorporated March 7, 1899 to operate a line of steam vessels from coast to coast through the Straits of Magellan. The name had its origin due to the fact that until the beginning of the World war the company's steamers made regular calls at Hawaii for sugar cargoes.

Plan and Build New Ships

At once after the establishment of the line in 1899 two vessels were ordered, the AMERICAN from the Roach Shipyards, Philadelphia, and the CALIFORNIAN from the Union Iron works, San Francisco. The latter vessel was completed June 28, 1900 and the AMERICAN in October the same year. In 1901 the company had four steamers in service and had on order the building of four more. By 1911 the fleet had been increased to 17, all of the finest type of first-class cargo vessels. Until 1907 the fleet operated from coast-to-coast as contemplated through the Straits of Magellan. In that year the Tehuantepec National railroad was completed and the company's fleet was divided into two units, one maintained on

the Atlantic, and the other on the Pacific. From this time until the opening of the Panama canal, cargo was transferred by rail across the Isthmus of Tehuantepec.

The American-Hawaiian Steam-

and left Balboa in tow for Cristobal. Practically at once after this all the vessels of the fleet were diverted to the route through the canal. To signify this step the company adopted its now well known medallion "The Panama Canal Line," in a blue band around the house flag.

Notable Regularity of Service

Except for the unavoidable interruption of the World war, when its fleet served the government for war transport purposes, the American-Hawaiian Steamship Co. has maintained a scheduled regular coast-to-coast service ever since the opening of the Panama canal. At the beginning of the war in 1914 the company owned and operated 26 vessels. Nine vessels of this fleet, from time to time during the period from 1914 to April

American-Hawaiian Fleet Particulars February, 1928

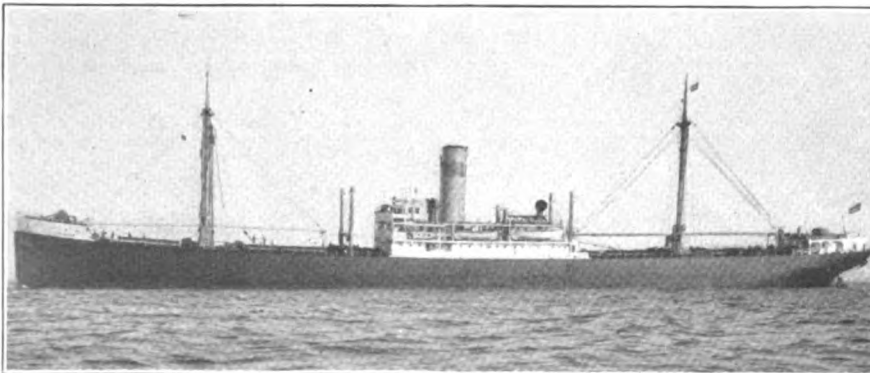
Vessel	Net	Tonnage		Dwt.	Place	Built	Time	Horse-power
		Gross	Canal					
AMERICAN.....	3771	6243	4753	9470	Philadelphia	Jan., 1916	3400	
ARIZONAN.....	5513	8589	6684	14183	San Francisco	Feb., 1903	3000	
CALIFORNIAN.....	4973	7966	6019	11495	Chester, Pa.	May, 1922	4500	
COLORADAN.....	3392	5380	4203	7925	Chester, Pa.	Aug., 1901	2200	
COLUMBIAN.....	3738	6262		9435	Philadelphia	Aug., 1913	3400	
DAKOTAN.....	4039	6537	5058	10165	Sparrows Pt.	1912	4000	
FLORIDIAN.....	4198	6765	5104	10310	Sparrows Pt.	1915	4000	
GEORGIAN.....	2981	4821	4023	7814		1920	2500	
HAWAIIAN.....	3840	6270	4788	9440	Philadelphia	May, 1919	3400	
HONOLULAN.....	3381	5399	4113	8060	Chester, Pa.	1900	2050	
IOWAN.....	4041	6529	5002	10200	Sparrows Pt.	1914	4000	
KANSAN.....	3911	6339	4772	9490	Philadelphia	July, 1918	3400	
KENTUCKIAN.....	4039	6479	4941	9945	Sparrows Pt.	1910	3100	
MEXICAN.....	5427	8601	6874	13368	San Francisco	1907	4500	
MINNESOTAN.....	4052	6617	4899	10225	Sparrows Pt.	1912	4000	
MISSOURIAN.....	4973	7966	6019	11200	Chester, Pa.	July, 1923	4500	
MONTANIAN.....	3833	6275	4775	9490	Philadelphia	April, 1917	3400	
NEBRASKAN.....	4144	6682		10860	Germany	July, 1912	4000	
NEVADAN.....	2829	4734		10375	Germany	July, 1912	3500	
OHIOAN.....	4896	6525	4896	10200	Sparrows Pt.	Aug., 1914	4000	
OREGONIAN.....	3829	6275	4780	9490	Philadelphia	Jan., 1917	3400	
PANAMAN.....	4057	6535	5029	10200	Sparrows Pt.	1913	4000	
PENNSYLVANIAN.....	4065	6579	4916	10200	Sparrows Pt.	1913	4000	
TEXAN.....	5505	8594	6903	13091	Camden	1902	3700	
VIRGINIAN.....	5044	8015	7545	11210	Sparrows Pt.	1903	5000	

Note:—None of the above vessels carry passengers. All are at present operated on a schedule speed of 11.5 knots

ship Co. has the distinction of being the first to make commercial use of the Panama canal. Three barges loaded with sugar were diverted from the Tehuantepec route May 18, 1914

1917 were employed in the transatlantic trade, carrying supplies to the Allies. During this period and before the United States entered the war ships of the company made fifty-eight round trips carrying over 300,000 tons of merchandise and 100,000 horses. When the United States entered the war 18 vessels of the fleet were turned over to the government for war transport service.

No American steamship company played a more important part in war activities than did the American-Hawaiian. Two of its vessels were of the first fleet of 13 ships to carry United States troops and supplies to France. Altogether its vessels carried 125,499 troops and 625,641 tons of cargo overseas without loss of life and without a single delay or



Steamship Kansan—American-Hawaiian Steamship Co.

accident except a broken rudder on the PENNSYLVANIAN returning light from France. This splendid record was due in part at least to the efficiency in personnel and equipment which had been developed during years of peaceful activity and under the stimulus of private ownership and operation.

Several Ships Were Torpedoed

There were serious losses to the fleet however; of the vessels turned over to the government the CALIFORNIAN and MONTANAN were tor-

pedoed and sank. In the transatlantic service under the ownership and direct operation of the company transferring supplies to the Allies, the COLUMBIAN, MISSOURIAN and KANSAN were torpedoed and sank. The war record of this important American fleet clearly proves, if anything can, the great need of good ships and a trained personnel when the country is faced with war. Without such ships and such men one of the first arms of defense is lacking.

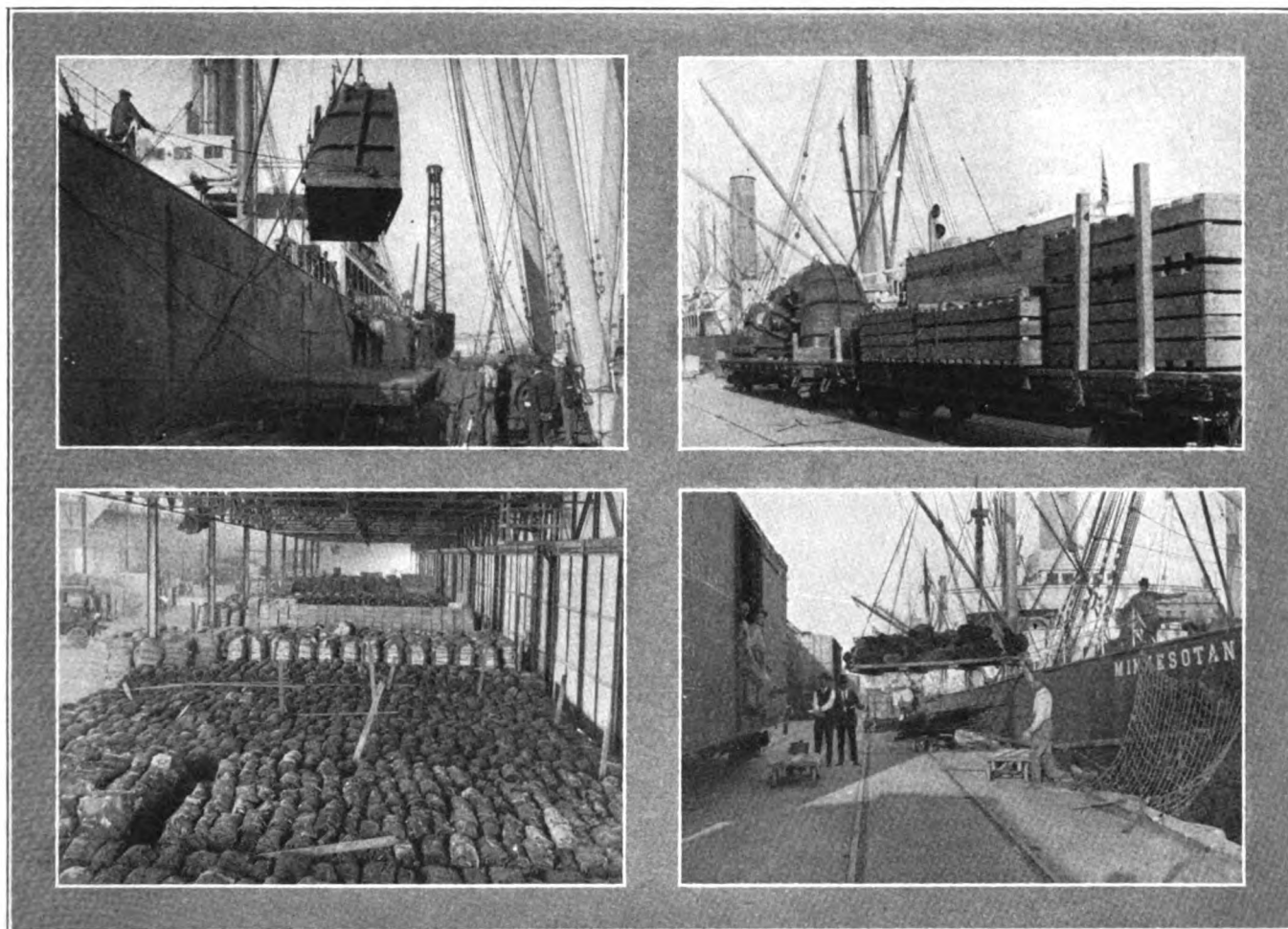
It was not until the latter part of 1919 that the American-Hawaiian fleet, which had been requisitioned

by the government for war purposes, was returned to the company. After thoroughly reconditioning these ships the service between the East and West coasts was resumed in 1920. Since then none of these vessels except the older ones which were sold has ever been diverted from this particular service. The business of the company has shown a steady growth year by year until it now operates a fleet of 23 modern motorships and steamers on a schedule that gives shippers east and west bound sailings every four days.

ter served. After building up the business to a high state of efficiency Mr. Cook resigned in 1925 and was succeeded by the present president, Roger D. Lapham. Other officials of the line are, J. D. Tomlinson, vice president and manager of East coast activities with headquarters in New York; J. E. Cushing, vice president and traffic manager; W. J. Mahoney, treasurer and secretary, and T. G. Plant, operating manager.

Ships Designed for Trade

Perhaps no steamship line was ever



Loading Scenes at the Los Angeles Terminal of the American-Hawaiian Steamship Co.

more deliberately planned. The originators had before them the problems of water transportation on a definite route and, planning directly for this service, they built and equipped ships particularly suitable for that trade. From an engineering point of view the company has been somewhat of a pioneer. Responsibility for engineering decisions has rested with Bernard Mills, superintending engineer. For instance this company was among the first to pioneer in the use of oil as boiler fuel. Thus having fine modern ships well kept up and under the con-

trol of a superintending engineer of broad experience and progressive ideas the success of the company has a solid foundation. In the operating end years of experience and an efficient and faithful personnel has given the company a splendid reputation for efficient and skillful handling of the finest package freight. Its steamers serve the ports of Boston, New York, Philadelphia and Charleston on the Atlantic coast. Seattle, Tacoma, Portland, Astoria, San Francisco, Oakland, Alameda and Los Angeles on the Pacific coast.

General Merchandise Carried

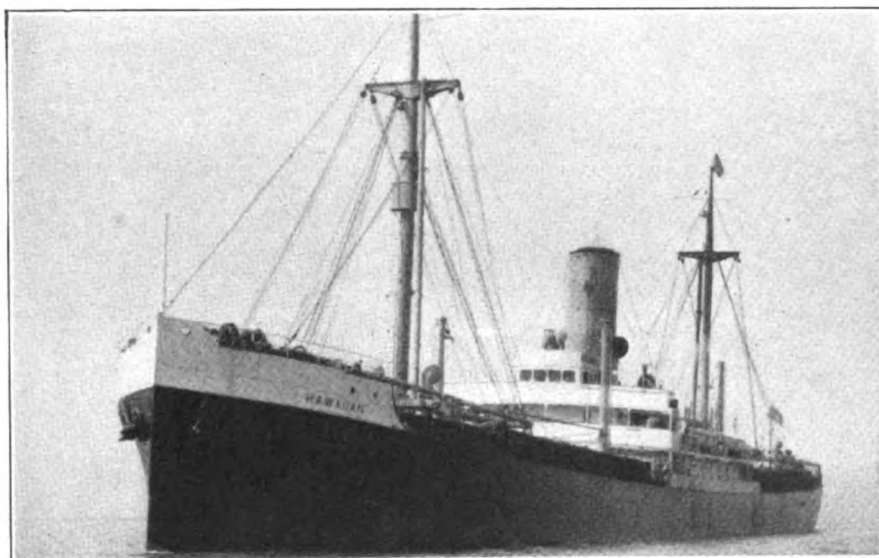
The company specializes in carrying general merchandise both east and west bound. West bound cargo consists chiefly of manufactured goods of

lumber is carried. There is an ever increasing percentage of Pacific coast manufactured products going to eastern consumers.

From one coast to the other there is also carried a large tonnage of export and import cargo going to all parts of the world in addition to the domestic coast-to-coast business. Nearly 80 per cent of all the manufacturing firms in the United States are located in territory tributary to the movement of tonnage from one coast to the other through the Panama canal. This territory in the east includes transcontinental rate areas, A, B, C, and in the west, Washington, Oregon, California and parts of Idaho, Utah, Nevada and Arizona. The commercial growth and importance of almost the entire

almost as good. The company maintains no auxiliary fleet. The record it is believed, for promptness has never been excelled by any other strictly freight service of similar character in this country if indeed anywhere in the world.

The fact that a high percentage of the finest merchandise moving through the canal is carried on the ships of this line is indicative of the class of service offered. The record for low claims is proof of the skill and thoroughness in handling high grade merchandise with a minimum of loss and damage. The line is distinctly a freight line. No passengers are carried. Both in mechanical equipment and in personnel the American-Hawaiian Steamship Co. deserves a high rating among American steamship lines.



Steamship Hawaiian—American-Hawaiian Steamship Co.

all kinds. Very little in the way of bulk commodities such as steel, cement, etc., is carried. West bound traffic might be compared to the retail trade in merchandising, the shipments being in small lots to and from a large number of shippers. East bound the shipments run to large lots and the trade is comparable to the wholesale trade in merchandising. Tonnage east bound is made up largely of canned pineapples from the Hawaiian islands, canned fruit, berries and vegetables from all three Pacific coast states and dried fruit, canned fish, manufactured lumber and also wool, rice, beans, cotton, etc. Of the total dried fruit movement from California to the Atlantic coast last year this line carried nearly 50 per cent. About 40 per cent of the total movement of canned fish from the Pacific to the Atlantic coast last year was also carried by this company. Very little rough or green

United States is bound up with the Panama canal trade.

A Sailing Every Four Days

Schedule sailings east and west bound are maintained from New York, Boston, Philadelphia on the Atlantic coast and from San Francisco and Los Angeles on the Pacific coast every four days. Alternate vessels go to Portland and Seattle giving these ports an eight day service. Every fourth vessel east bound calls at Charleston, S. C., with Pacific coast products, giving that port a fifteen or sixteen day service east bound only. As a matter of fact vessels of the line sail more frequently than every four days and the average for 1927 was a sailing every 3.6 days in each direction.

A remarkable on-time performance has been maintained, only three vessels having been late arriving at any Pacific coast port from the Atlantic coast. The east bound record was

Admiral Plunkett

(Continued from Page 17)

and the navy saw its result in the improvement in its gunnery.

The crowning feat of Plunkett's life was his amazing and unprecedented charge about France in the World war; a charge accomplished on railroad trains carrying 14-inch navy guns. Such a thing had never been heard of before, or even imagined. Nobody who did not see it can imagine it even now. Certainly the Germans had never imagined, or expected such a thing, and they never were able to make an effective counter attack. Of all the events of the war, both on the land and the sea, Plunkett's charge through France was immeasurably the most original and picturesque. In comparison with Plunkett's charge through France, the famous Pickett's charge at Gettysburg was a Sunday school excursion.

The closing days of Plunkett's naval career have been passed in the dual capacity of commandant of the third naval district and commandant also of that enormous industrial organization, the Brooklyn navy yard. Though he was 59 years old when he took charge, an age at which most men are devoting themselves to lives of idleness and uselessness, he showed at once, and has continued to show during the last five years, the same high pressure energy and ardor that had characterized his younger days. I will not bore you with a recital of what he accomplished there, because you know it as well as I do. Certainly his country may justly speak to him those inspiring words from the Holy Bible, "Well done, thou good and faithful servant."

New Commander Is Appointed for United States Lines' Flagship

CAPT. HAROLD A. CUNNINGHAM formally accepted command of the LEVIATHAN, flagship of the United States lines, Feb. 1 when Capt. Herbert Hartley, former master of the ship officially turned her over to his successor. At the same time Captain Cunningham received his papers and a flag, designating him as commodore of the United States lines' fleet, which makes him the new ranking officer of the American merchant marine.

The ceremonies in connection with the transfer of command took place at 1 o'clock aboard the LEVIATHAN at her Hoboken pier where she was then undergoing her routine winter overhauling preparatory to sailing in the Cherbourg, Southampton run from New York Feb. 11. Members of the LEVIATHAN's crew, including many of her officers, Gen. A. C. Dalton, vice president of the Merchant Fleet Corp. and Mr. Burke were present.

The assignment of Captain Cunningham to the LEVIATHAN brings him back to the vessel on which he was navigating officer during the war, when she carried thousands of American troops to and from Europe. Captain Cunningham was vice commodore of the United States lines, having been appointed to that rank at the same time that Captain Hartley was made commodore in October 1926. Captain Hartley's resignation became effective Feb. 1.

During Captain Cunningham's career on the North Atlantic he has made many friends and has frequently been referred to as the most popular captain aboard any vessel operating between New York and European ports. A native of Sag Harbor, Long Island, Captain Cunningham obtained his early sea experience on the sound steamer SHINNECOCK, plying between Sag Harbor and New York. There he developed a love for the sea which prompted his getting a job in the coastal service.

When the first convoy of American troops went to Europe, Captain Cunningham was first mate aboard the MOMUS. Shortly thereafter, he was assigned to the LEVIATHAN while she was being fitted out to carry troops and when the gigantic liner started on her first trip as a troop ship, Captain Cunningham was her navigating officer. Following the

war, in command of the MOUNT VERNON, he took that vessel through the Panama canal, a feat in navigation which was acclaimed by merchant marine officers everywhere, as this



COMMODORE HAROLD A. CUNNINGHAM
New Commander of the S.S. Leviathan

liner was the largest to ever go through the canal up to that time. Again he returned to New York, taking command of a freighter and was subsequently transferred to the PAN-



COMMODORE HERBERT HARTLEY
Late Commander of the S.S. Leviathan

HANDLE STATE and later to the CENTENNIAL STATE, flying the American flag in the North Atlantic passenger trade. When the GEORGE WASHINGTON was ready for service, Captain Cunningham sailed in command August, 1921, and was just relieved when he arrived Jan. 29 on her sixty-seventh voyage under the American flag. Captain Cunningham is married, has one child and lives in Glen Ridge, N. J.

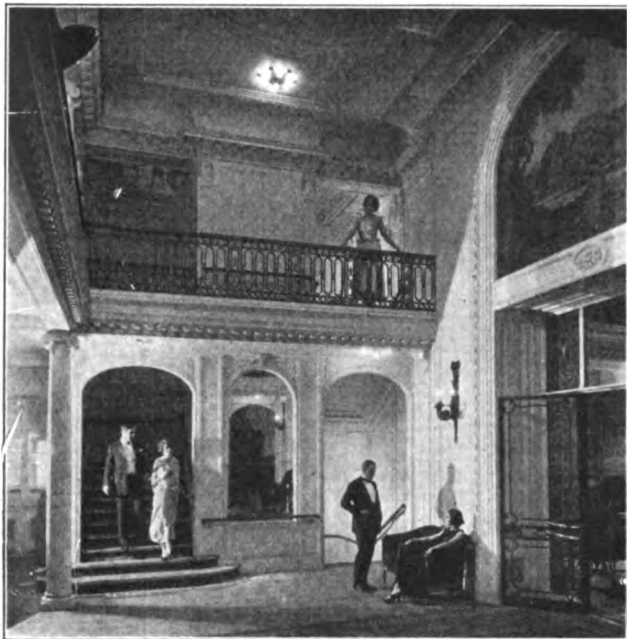
Following her routine winter overhauling and redecorating, the LEVIATHAN, flagship of the United States Lines' fleet sailed at 2 p.m. Feb. 11, for Cherbourg and Southampton on her first voyage of the transatlantic run for 1928. The liner carrying more than 1000 passengers sailed from pier 86, North river, at the foot of West Forty-sixth street.

The GEORGE WASHINGTON of the United States lines sailed at noon Feb. 1, for Plymouth, Cherbourg and Bremen in command of Capt. Theodore Van Beck, relieving Captain Cunningham. Captain Van Beck is temporarily assigned to the GEORGE WASHINGTON, having been transferred for one voyage from the PRESIDENT HARDING which sailed Feb. 3 for Mediterranean ports.

The resignation of Commodore Herbert Hartley, master of the S. S. LEVIATHAN, was reluctantly accepted by the shipping board Jan. 24.

Commodore Hartley is retiring from the sea after thirty-five years of service in the American merchant marine. He has accepted an appointment as chief operating officer of the recently organized Trans-Oceanic Corp. which plans to build and operate six 35,000-ton liners capable of crossing the Atlantic in four days, with a sailing every other day. Captain Hartley first went to sea in 1893 as an apprentice on the U. S. S. SARATOGA. Two years later he became a cadet on the S. S. ST. PAUL of the American line and in the service of this company passed through all the grades from junior officer to senior officer. In 1916 he was made master of the S. S. ST. LOUIS, which position he held until 1920 when he took command of the S. S. MONGOLIA. He resigned his command of this vessel to take command of the LEVIATHAN on March 20, 1923. He

(Continued on Page 54)



Grand Staircase and Foyer—S.S. Leviathan



Palm Court Tea Room—S.S. Leviathan

Decorative Lighting Compared on Two Modern Ocean Liners

By Roger A. Lea

A LONGING for the beauty that exists in the work of all true craftsmen and artists is a universal human trait. Of course we all have our own notions as to what is beautiful and what is lacking in beauty. But some concepts are common to all.

Most people will agree that in general the things that leave with you a feeling of repose, satisfaction, com-

fort or pleasure, coupled with a sense of propriety, harmony, rhythm or symmetry, or call up emotions such as elation, inspiration or delight, can safely be classed as beautiful or at least in good taste. While lighting equipment may not and perhaps should not call forth strong emotional reactions, it is reasonable to conclude that the finest examples of the craft should possess one or more of the

above virtues. Appropriate or superior lighting "furniture," possesses rhythmic lines which will harmonize with the architectural features of the room, and carries out in design and detail the period or other characteristics of the furniture. It must reflect dignity and charm, and permit the fanciful mind to find at least one or two motifs with

which to play. Perhaps it is the charm of color and finish. It may be the exquisite chasing wrought by a master-in-metals. Again, an unusual design or an interesting texture of glassware or grouping of crystal pendants may be the thing that holds the imagination. Whatever it be, there will be found one or more distinctive elements in the better lighting equipment.

Two of the most strikingly contrasting examples of lighting equipment art are furnished by the installations on the great passenger liners LEVIATHAN and ILE DE FRANCE.

When the LEVIATHAN, considerably the older of the two vessels, sailed from New York on July 4, 1923, it was her maiden voyage under the American flag and millions of Americans who had admiringly followed her reconditioning under the supervision of the United States shipping board, were justly proud of her splendid appointments and rich fittings. From bow to stern her lighting equipment is still a model for marine engineers and designers to study.

It was no small task that faced the decorators in adorning this monarch of the steamship lanes. Some



First Cabin Drawing Room—S.S. Leviathan

idea of the immensity of the job can be visualized by comparing the LEVIATHAN to the largest hotel in the world—Hotel Pennsylvania, New York city. This monster hotel has only half as many rooms as the LEVIATHAN. Little wonder that everyone marvels that the latter's more than 4000 units are all in excellent taste—exquisite specimens, of which the owners and the makers can be justly proud.

The moonstone glass fixtures in the staterooms embody the maritime atmosphere and are reminiscent of the sea shell in contour and design.

Concealed cornice lighting, supplemented by skylights or portable lamps, are found in the social hall, winter garden, swimming pool, restaurant and dining salon, and are model installations. All lighting equipment was installed before the carpets and other furniture. This was an advantage in that the room decorations could be made to harmonize with the fixtures.

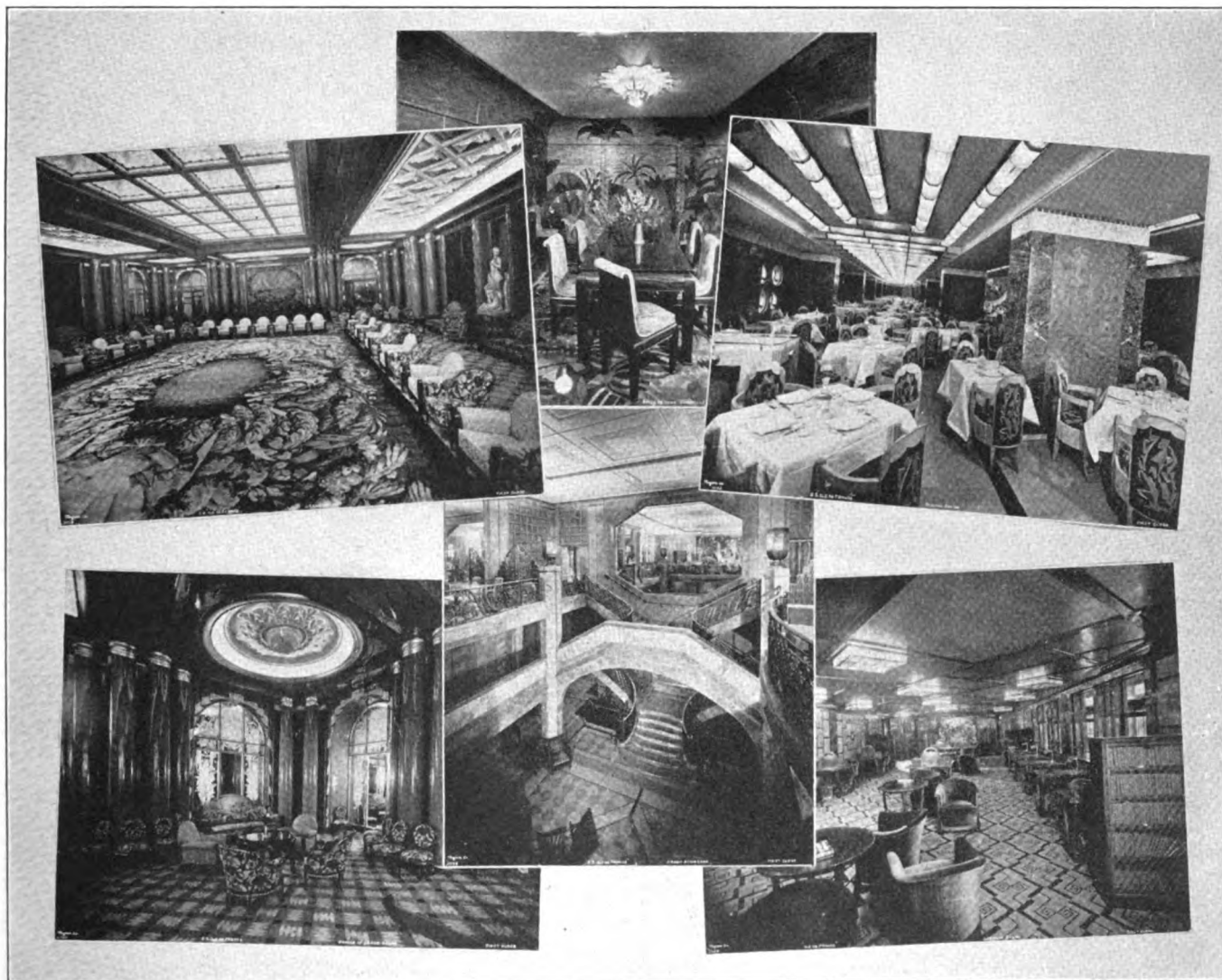
Characteristic of all the lighting

equipment aboard the LEVIATHAN is the soft mellow light produced, which is so restful to the eyes. Dignity, charm appropriate design and skillful craftsmanship are the predominating features. Some of the interesting and salient points about the Leviathan's lighting system are the facts that 20,000 incandescent lamp bulbs were required, supplied by the Edison Lamp works of the General Electric Co., the fact that 9000 switches were required of capacities varying from 2 amperes to 6000 amperes, and that the current required to light the LEVIATHAN adequately and completely for one evening would supply an average home for seven years. First class staterooms are equipped with reading lamps, bed lamps and convenience



Private Dining Room, First Cabin—S.S. Leviathan

lights for milady in making her toilet or for the gentleman when shaving. Nothing has been forgotten or left out. The boiler and engine room in-



Interiors S.S. Ile de France. Top—Sitting Room of a De Luxe Suite. Upper Left—Grand Salon. Upper Right—Main Dining Salon. Center—Grand Staircase. Lower Left—Corner of Grand Salon. Lower Right—Lecture Salon

stallations are models of their kind.

It is of interest to know that photostatic copies of the different types of fixtures required for each individual location were given to each manufacturer bidding for the lighting equipment contract. This enabled the manufacturers to render accurate and comparable estimates and is recommended as an ideal method of handling such matters.

Let us turn now to a consideration of the lighting on the ILE DE FRANCE, the superb new flagship of the French line. Here at once the impression is of unique, almost bizarre treatment of the lighting problems.

Perhaps the most striking feature is the exclusive use of molded and cut glass—glass in cylinders, bars and bowls. Not a single pendant ceiling piece on the whole ship. Luminous, honey-colored glass ceilings, pillar capitols with rectangular glass light boxes embedded in them, huge reflector-like domes and bowls

of glass, panelled ceiling lights, and other radical departments from the usual.

There is little to say about the design which largely consists of geometric variations which suggest a strong influence of the modernistic art of France. This same feeling is carried throughout the entire decorative scheme.

The children's room where dolphins are used as indirect lighting units furnishes a pleasing variation from the more severe simplicity and angular contours of the rest of the ship's lighting equipment. In general, the utter simplicity of the fixtures has lead some critics to assert that a good portion of them might be termed "glorified commercial units," and they point to the smoking room, gymnasium and the huge vaulted porcelain units in the corners of the grand salon.

The dining room is lighted by means of a number of square molded glass

light sources, the golden-amber glass flooding the room with honey-colored light. The little chapel with a capacity of 80 persons is one of the show places of the ship. Here a huge glass cross rises above the altar. Lighted from behind the cross together with the two round windows on either side produce a particularly appropriate atmosphere in this room.

The honey-gold light shed by these novel lighting units is both warm and cheerful. It may be doubted whether the fact that these forms of lighting equipment draw attention to themselves is a point in the favor. Many incline to the viewpoint that a thing must be beautiful and complex enough to bear some study and more minute examination if it is to be acquitted of the charge of attracting unjustifiable attention. While it can hardly be said that the lighting equipment on the ILE DE FRANCE transgresses in this respect, it can

(Continued on Page 54)



French Line Flagship Ile de France. Top—S.S. Ile de France. Upper Left—Second Class Dining Room with Luminous Pillar Capitols. Upper Right—Children's Playroom with Lighting Units in shape of Dolphins. Center—The Chapel. Lower Left—Gymnasium. Lower Right—Smoking Room

Shipbuilding in U. S. Declines-I

Highly Skilled Technical Staffs Disrupted—History of the Industry and Its Importance—Lack of Naval and Merchant Work—Navy Yard Competition

By H. G. Smith

Vice President, Bethlehem Shipbuilding Corp., Ltd.

THE characteristics of a modern, well equipped, well organized private shipyard represents an expenditure of several millions of dollars distributed in a large assemblage of buildings, machinery and equipment spread over several acres of ground, together with building ways, drydocks, mooring piers and deep water approaches directly to the yard.

In personnel it consists of a highly trained staff of technical employees qualified to design and superintend the building of vessels of all types, and several thousand workmen skilled in some 30 to 40 different trades, with their helpers competent to perform the work of construction.

Paralleling the shipyard engaged in construction is the repair yard whose function is to effect the repair and reconditioning of vessels as occasion requires after they are built and put into operation.

The technical staff and the mechanical staff are equally important in the production of a ship. The technical staff is more difficult to replace, however, than the mechanical staff. Mechanics of most of the shipbuilding trades can be trained in six to 12 months; but the technical staff requires many years and a varied experience to become qualified and trustworthy to design the hulls and machinery of modern vessels. The shipbuilding capacity of the United States is, therefore, measured by the number of trained and experienced technical men available and any condition that lessens this number reduces the efficient shipbuilding capacity of the country. It will be shown that the technical capacity of the shipbuilding industry is far less now than it was before the World war.

History of Shipbuilding in U. S.

The history of our modern shipyards has been that of a struggling industry, seldom operating to normal capacity; confined almost wholly to the construction of naval vessels or

vessels for the domestic trade; rarely constructing duplicate vessels, and thereby operating as a specialist instead of as a manufacturer. The industry has been in a constant state of flux as to employment with large variations in the number of employees from year to year and consequently with little opportunity to effect those savings in cost that come with repeat orders for vessels of similar type. At no time except during the war program, has the business flourished. The end of 1916, however, just before the entry of the United States into the World war, is a fair basis for comparison with present conditions.

For many years prior to the war, the larger shipyards had a backlog of

MR. SMITH'S paper is so clear and logical, so convincing in its sincerity in showing by irrefutable facts the deplorable condition of the shipbuilding industry of the country, that it deserves the most careful consideration. On account of its importance in finding a way to help build up an American Merchant Marine it is published in full in two parts. The second part will appear in an early issue.

naval work, constituting about 60 per cent of their total business and sufficient to require and maintain large staffs of highly trained technical employees. It was from the staffs of these yards and from other shipyards engaged only in commercial work that engineers, architects, designers and supervisors were drawn to form the nucleus of the many new shipyards that sprang up during the World war and participated in building vessels. Of the older shipyards in 1916 there were 16 engaged in the building of large steel vessels.

During the World war some 1600 steel vessels of 11,500,000 tons deadweight were constructed in the private shipyards of the United States. The vessels were largely of standard types readily constructed, designed and built for the particular purpose of carrying men and supplies to France.

For every man employed in ship-

building in the United States in 1916 about eight times as many were engaged in the art at the end of 1918 so that for each man in service in 1916—seven others were trained for the industry. A large expansion in so short a time does not produce efficiency but to have expanded to such a capacity at all would have been impossible without the nucleus of highly trained shipyard employees that existed in 1916.

In a Continuous Decline

Since 1921 shipbuilding in the United States has been in a continuous decline. Leftover war contracts for both the navy and Emergency Fleet Corp. and a fair amount of new business in 1919 and 1920 maintained fair activity in the shipyards until the end of 1921, although the amount of new business taken on in 1921 was very small. From 1922 to 1927 inclusive the total merchant shipbuilding per year, as taken from Lloyd's reports, is, with one possible exception less per year than for any prewar year since 1897, and in comparison with the building in foreign countries from 1922 to 1927 the United States presents a sorrowful picture.

A moderate sized vessel is one of 4500 gross tons. In order to compare the shipbuilding in the United States with foreign countries from 1922 to Aug. 15, 1927, an analysis was made from information furnished by the United States shipping board of all vessels of 4500 gross tons and above built in the principal shipbuilding countries of the world with the following results:

January, 1922, to Aug. 15, 1927

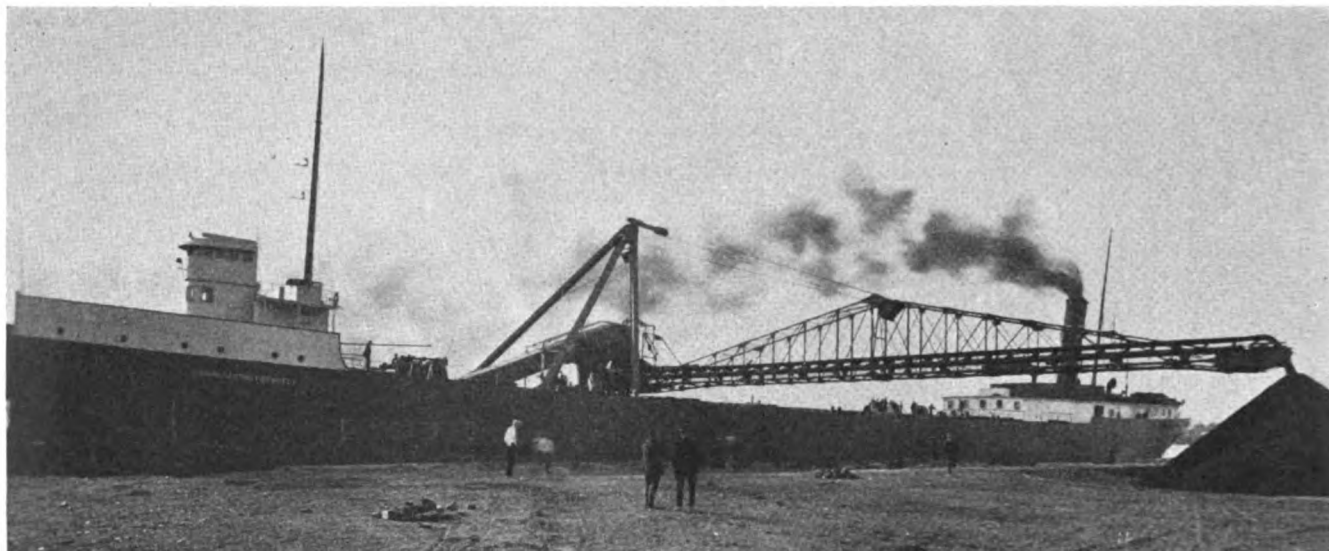
Grand total world tonnage	7,900,847
Tonnage built in United States	309,264
Grand total number of vessels	1,034
Total built in United States	41

Included in the above number of vessels built are 307 motorships of which only two were built in the United States.

Another analysis made of foreign-built vessels of 4500 tons gross or above admitted to the coastwise trade of the United States under the merchant marine act of 1920 shows 65 vessels of 370,417 gross tons. This tonnage exceeds the gross tonnage of vessels of 4500 tons and above

(Continued on Page 52)

This is Part I of a paper read by H. G. Smith, vice president of the Bethlehem Shipbuilding Corp. Ltd. on Jan. 19, representing the National Council of American Shipbuilders before the National Industrial Conference Board Inc.



Steamer John McCartney Kennedy Unloading Coal—130-foot Boom Conveyor—Capacity 1000 Tons Per Hour

Self-Unloader Business Grows

**Three Large Bulk Freighters Now Being Equipped for Self-Unloading
—New Vessel of This Type for Lakes Recently Built Abroad**

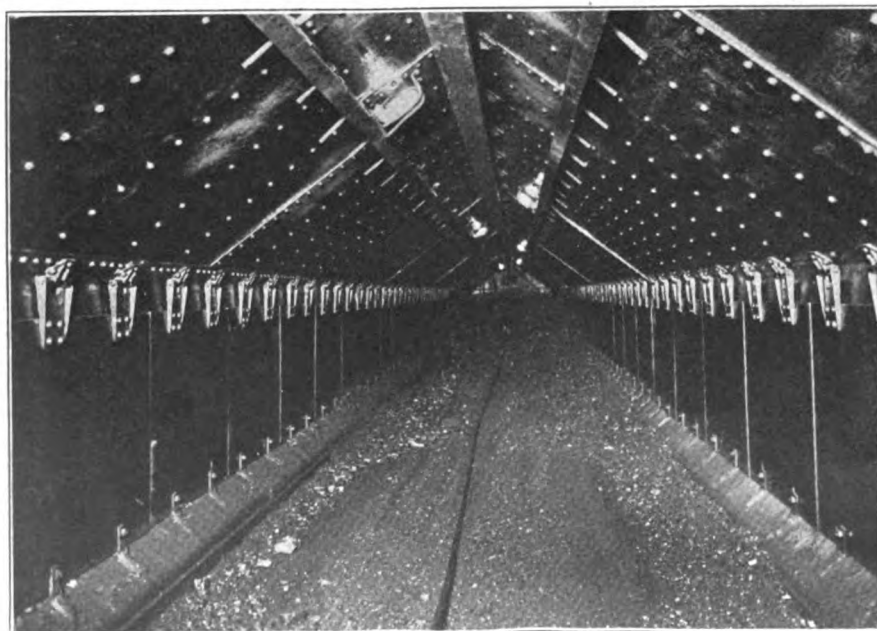
THE development of self-unloading gear for bulk cargoes makes it possible to effectively utilize a number of the older and smaller ore carriers on the Great Lakes which have become largely obsolescent with the advent of the 600-footer. By the installation of this equipment such vessels again become valuable units and return good profits on the investment. Nine vessels for Great Lakes service have been equipped as self-unloaders for carrying and discharging ore, coal, sand, gravel and cement, using the Leathem D. Smith gear.

Three additional large bulk cargo vessels are now being converted with the same type of patented sub-cargo scraper steamer. These are the steamers, THOMAS BRITT, owned by the Valley Camp Steamship Co.; and the WILLIAM RAPPRICH and the HOOVER and MASON, both of the Tomlinson fleet.

In the THOMAS BRITT, which is of 6600 tons capacity, 410 feet long, 48 feet in breadth and 28 feet deep, the fourth vessel is being equipped with self-unloading apparatus of this type for the same company within the

last three years. The other vessels owned by this company and so equipped are the J. M. KENNEDY, S. B. WAY and VALLEY CAMP. There can be little question concerning satisfactory operation in the mind of this owner. The BRITT is equipped with two ten-yard crescent scrapers, a 60-inch inclined conveyor and a 54-inch boom conveyor 140 feet long. In operation the THOMAS BRITT will have a rated unloading capacity of 1300 tons per hour. On account of its larger tonnage the equipment on the BRITT is one size larger than that installed on the WAY and KENNEDY. Another new development on the BRITT is the lowering of the tunnel floor down to the 15-inch floor frames which gives her a full capacity of about 6200 tons. As the deadweight of this ship light has been increased approximately 400 tons by the installation of the unloading equipment the cubic space available for cargo will permit this vessel to load with coal to her full load draft. In lowering the tunnel floors to the bottom floor channels, additional angles were put on the backs of the latter and all riveted to the tunnel floor plates making a heavy box girder construction in the way of the tunnel.

The steamer WILLIAM RAPPRICH is a vessel of 6800 tons, 416 feet long, 50 feet in breadth and 28 feet deep. She is being equipped with the same type of apparatus for self-unloading as the THOMAS BRITT. Work on both vessels is being done at the Leathem

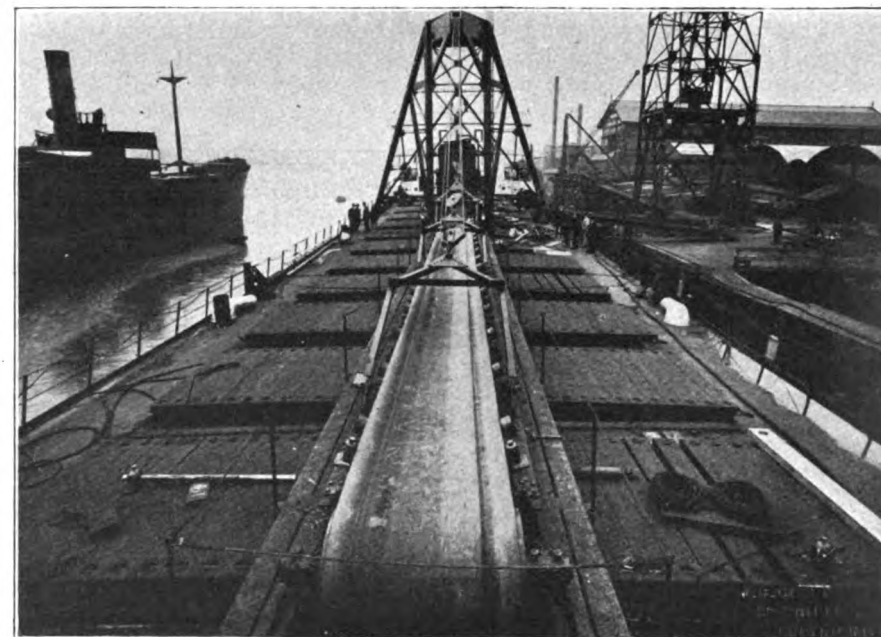


Scraper Shoving Coal Ahead in Tunnel from Aft Compartment—Other Doors Closed

D. Smith Dock Co., Sturgeon Bay, Wis., and is to be completed on April 15, in time for the opening of navigation. Both vessels were delivered to the Dock company at Sturgeon Bay on Dec. 15.

One new feature of the RAPPRICH's equipment is that she is designed to handle bulk cement in addition to coal, stone, wet sand and other material handled by the other unloader boats. Bulk cement has peculiar characteristics which complicate the design of apparatus to handle it. Vessels designed to handle bulk cement on the Great Lakes have heretofore been specially built using a screw conveyor and air suction apparatus. Naturally such vessels are limited to the handling of cement being unable to handle lump or abrasive materials. The only change in the RAPPRICH's equipment over that of the BRITT is the installation of small openings about 12 inches in diameter in the large doors in the tunnel. Bulk cement thoroughly compacted will stand vertically, but when it starts to move and becomes aerated, it has an extremely flat angle of repose, spreading out freely in every direction. On this account it was deemed advisable to install the small door openings to check the flow of cement into the tunnels under the full pressure of the cargo.

The tunnel inclined sides are canvas curtained to keep the dust from hoisting machinery and operator. Where the cement is fed from the scraper hopper to the inclined belt canvas curtains and air vents are fitted to prevent the blowing out of dust into the machinery space. The boom conveyor is to be covered with canvas which will be used while handling cement and removed for other cargo. Both the BRITT and the RAPPRICH have "A" frames designed to permit the conveyor boom to swing



Steamer Valley Camp—Showing Simple I-Beam Boom for Boom Lengths up to 90 Feet—Photo Taken in Newcastle-on-Tyne

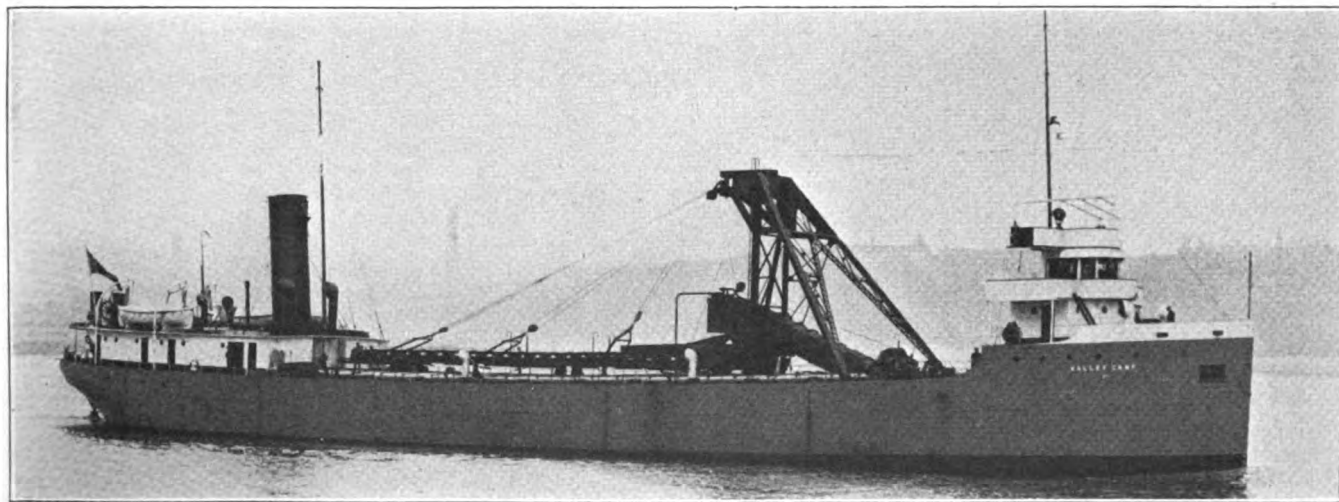
30 degrees ahead of amidships. This is of particular advantage in discharging material in dead end slips because it permits the vessel to land the cargo at any point up to almost abreast of the vessel's stem.

Large Vessel Is Converted

Probably the steamer HOOVER & MASON is the largest vessel converted to self-unloading. Her capacity is 9500 tons and her overall dimensions are, 504 feet long, 54 feet in breadth and 30 feet deep. This vessel is being equipped with a new development of the same unloading apparatus. The work is being done at the Lorain plant of the American Ship Building Co. All the steel work and machinery installation is being done by the shipyard while the machinery and the designs and plans are supplied by the Leatham D. Smith Dock Co. Due to the length of this vessel and

the high rate of unloading desired it was found advisable to use a 96-inch pan elevator located approximately amidship. This pan is fed by a cross hopper which in turn receives the material from four 8-yard scrapers, two from the after end and two from the forward end of the ship. The length of the after tunnels is 126 feet and of the forward tunnels 172 feet, the elevator being so placed as to allow a 150-foot conveyor boom to be landed on the deck from the forecastle cabins aft. The boom conveyor has a 60-inch belt and the apparatus will have an unloading capacity of from 2000 to 2500 tons per hour.

Power used on all of the above boats is steam. Steam hoists are used for handling the scrapers. Twin steam engines are directly connected to the conveyor and elevator drive. The use of steam engines gives flexible



Self-Unloading Steamer Valley Camp—Built by Swan, Hunter, Wigham Richardson, England

speed control, eliminates high speed reduction gearing, and makes it possible to maintain the equipment without the addition of engineers other than those experienced with the usual steam machinery.

It may be said that in general the new designs of this apparatus with which vessels have been equipped in the last few years have proved their practical correctness by the test of actual service. If the tunnel floors are placed as low as possible a maximum of cubic cargo space is possible with this system. Speed of unloading at any rate is obtained by determining the size and arrangement of such equipment to suit the tonnage of the vessel and the unloading capacity desired. Simplicity of construction of the tunnels and the slopes is an outstanding feature. This type of construction also adds greatly to the strength of the ship.

Vessels in service have demonstrated in a practical manner that this type of unloading equipment can be used effectively for non-free flowing material such as wet sand and bulk cement. The design of tunnels

permits ideal drainage for wet cargo. The size of openings to the tunnels are not restricted by any danger of flooding these spaces with material and this makes it possible to handle large angular slabby material. Designs have been worked out to handle stone up to 500-pound pieces.

The low position of cargo and the comparatively limited head room required makes it possible to apply this type of self-unloader for shallow draft operation and under limited bridge clearances. For sea-going ships there is the advantage that this installation will permit the use of watertight doors through bulkheads in the tunnels, thus subdividing the cargo space into watertight compartments.

Maintenance Cost Is Low

All of the vessels equipped have been in continuous successful operation and the maintenance cost of equipment has been low. In the *MARINE REVIEW* for January, 1925, there is an interesting article describing and illustrating the self-unloading equipment of a similar type on the four steamers, *BAY STATE*,

CLIFTON, *ANDASTE* and *FONTANA*. The principles and details of the system are fully described in diagrams, photographs and text.

Engineer Opens Office

Martin L. Katzenstein, for the past 25 years manager of the marine department of the Worthington Pump & Machinery Corp., has resigned from this position and accepted the office of vice president of the L. Katzenstein & Co., engineers and contractors. Mr. Katzenstein has opened a downtown office at 117 Liberty street, New York City, for his company.

Expert advice will be given on the selection, purchase and sale of machinery and equipment for ships. Equipment such as torsigraphs, vibrographs, tachometers, diesel engine indicators, etc., will be sold. The company is also well known as a manufacturer of metallic packing for all purposes. Its machine shop is fully equipped for repairs to ship machinery either steam or diesel. The factory and shops are located at 358 West street, New York City.

Enters New York-Havana Passenger Service

THE Ward line steamship *HAVANA*, illustrated herewith, arrived in New York on Feb. 6 by way of the Panama canal from the Todd Shipyards, Seattle, and entered the Ward line's New York-Havana passenger and cargo service, sailing from New York on Feb. 11. She will supplement the regular sailings of the *ORIZABA* and the *SIBONEY* of the same line.

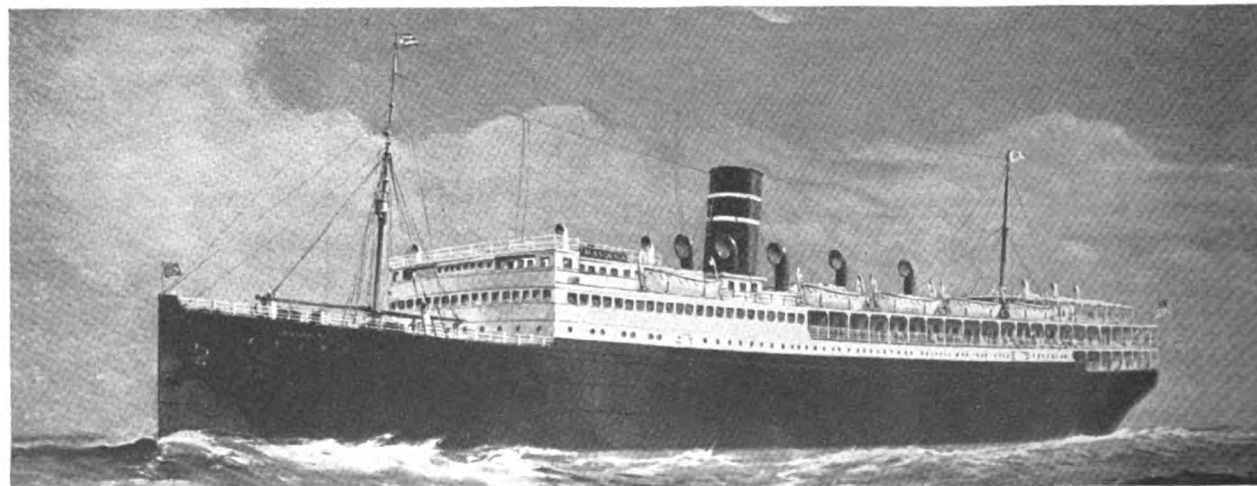
The addition of the *HAVANA* to the New-York Havana service will provide increased facilities for the great tide of travel to Cuba predicted by the Ward line for the height of the winter season. Other ships of the line now in service

besides the *ORIZABA* and *SIBONEY* are the *MONTEREY* and the *MEXICO*, running between New York, Havana and the Mexican ports of Progreso, Vera Cruz and Tampico.

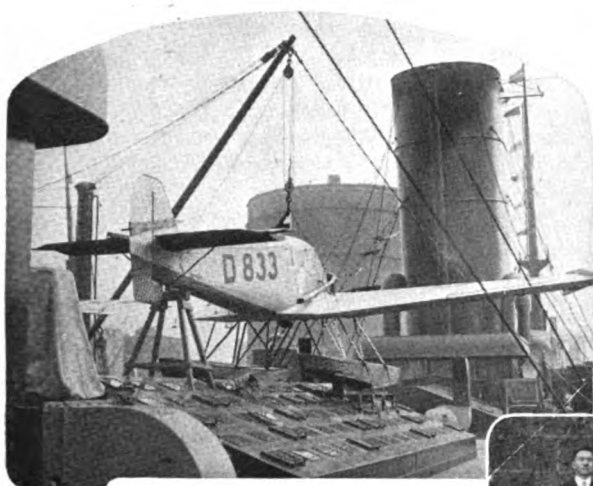
The *HAVANA* is 430 feet long and has accommodations for 259 passengers and a crew of 133 officers and men. The passenger accommodations include sixteen suites and twenty-two special rooms in addition to many regular staterooms of the first class, and a limited number of second-class rooms.

Each stateroom is equipped with oscillating fans, reading lights over all beds and berths, and thermos bottles in suitable

racks. All rooms are furnished with portable furniture, with the exception of a few of the inside staterooms which have stationary settees. The furniture, draperies, hangings and floor coverings are of special designs and in pleasing and harmonious color schemes. There is running hot and cold water in every stateroom, and baths and showers conveniently located throughout the steamer are supplied with hot and cold water, both fresh and salt. A complete description of the elaborate work necessary to recondition this vessel appeared in *MARINE REVIEW* for September, 1927, beginning on page 17.

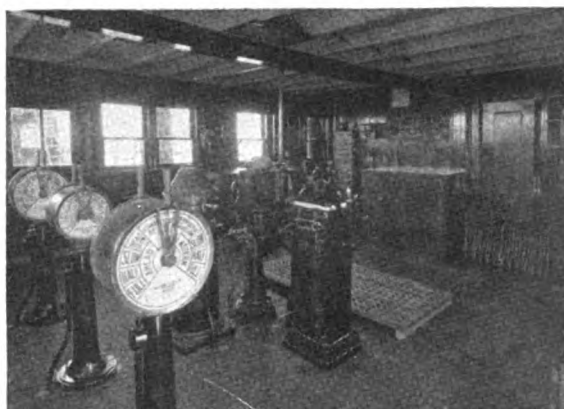


Latest Marine Events in Pictures



Above—Passenger seaplane carried on the German liner Columbus on her West Indian cruise. Passengers may use the seaplane for sightseeing at ports of call, particularly where the ship is unable to dock

Below — Group of Japanese naval officers from the cruisers Iwate and Asama who were guests of the Westinghouse Electric & Mfg. Co. on an inspection of that company's South Philadelphia plant



Above—Looking aft and to starboard in the pilot house on the S. S. California. Finest equipment is fitted. Magnetic and gyroscopic compasses, improved signals and steering gear



Above—Top of one of the two Hooven, Owens, Rentschler M. A. N. diesel engines in the Standard Oil tanker J. A. Moffett, converted by Todd

At Right—Broken gudgeon on the stern frame of the S. S. Gypsum King. A clear break $\frac{5}{8}$ of an inch wide, 7 inches from frame, welded



Below—Passenger Steamer Tionesta plying between Duluth and Buffalo



Below—Capt. H. A. T. Candy, master of the S. S. California, operating the vessel's Kolster Radio compass

Below—Boat deck of the new California with Welin life saving equipment

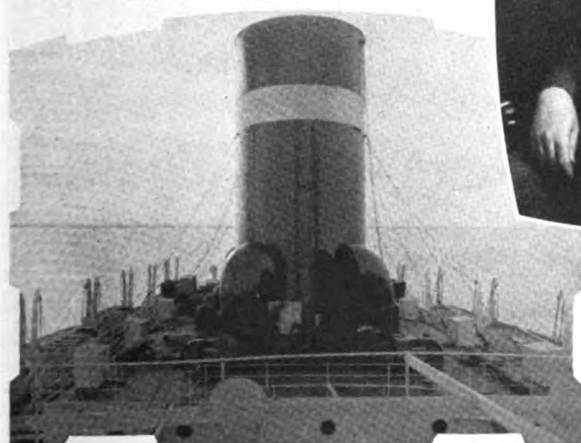
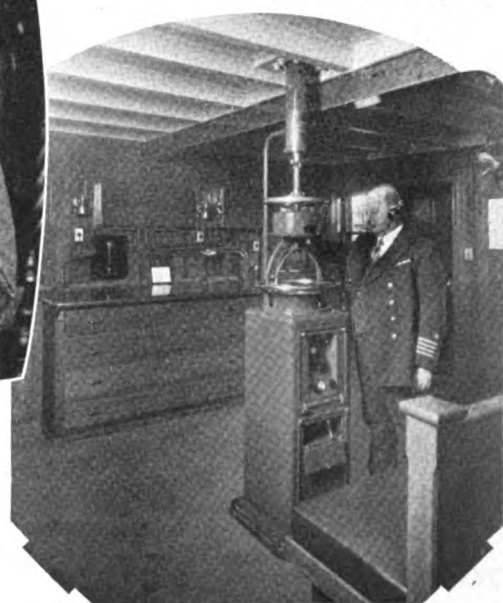


Photo by Marcean

Above—Austin B. Carlson, operating manager of the Luckenbach Steamship Co., Inc., New York City



Diesel Electric Drill Boats



Diesel Electric Drill Boat No. 15 of the Pennsylvania Railroad—For Shifting Floats

ABOUT a year ago, two so-called drill boats fitted with diesel electric propulsion were completed for service in New York harbor. The hulls were built by the Newport News Shipbuilding & Drydock Co. and the machinery was installed at the shops of the Pennsylvania railroad. The boats are designated as P.R.R. No. 15 and P.R.R. No. 20. They are owned and operated by the Pennsylvania railroad and were designed under the direction of F. L. Dubosque, superintendent of floating equipment for the railroad. The P.R.R. No. 15 was completed Nov. 1, 1926, and the P.R.R. No. 20 was completed Dec. 20, 1926. There is no classification, the boats being built to the company's own specifications.

The length overall is 80 feet, and other dimensions are as follows:

Length between perpendiculars, 58 feet 6 inches; breadth molded, 19 feet; depth molded, 12 feet 10 inches; draft, 9 feet 6 inches; gross tonnage, 95 and net tonnage 64.

Propulsive power is supplied by two Winton diesel engines of 6 cylinders, $8\frac{1}{2} \times 11$ inches, 150 horsepower each, direct connected to electric generators of 105 kilowatts each, with 15 kilowatt exciters attached. The generators were furnished by the Westinghouse Electric & Mfg. Co. The current generated operates one double armature, Westinghouse electric motor of 250 shaft horsepower, direct connected to a continuous propeller shaft with a propeller at each end.

Bilge pumps are of Blackmer rotary type, motor driven as is also the fire pump of Gould make. The steering engine was built in the Pennsylvania shops and is motor driven.

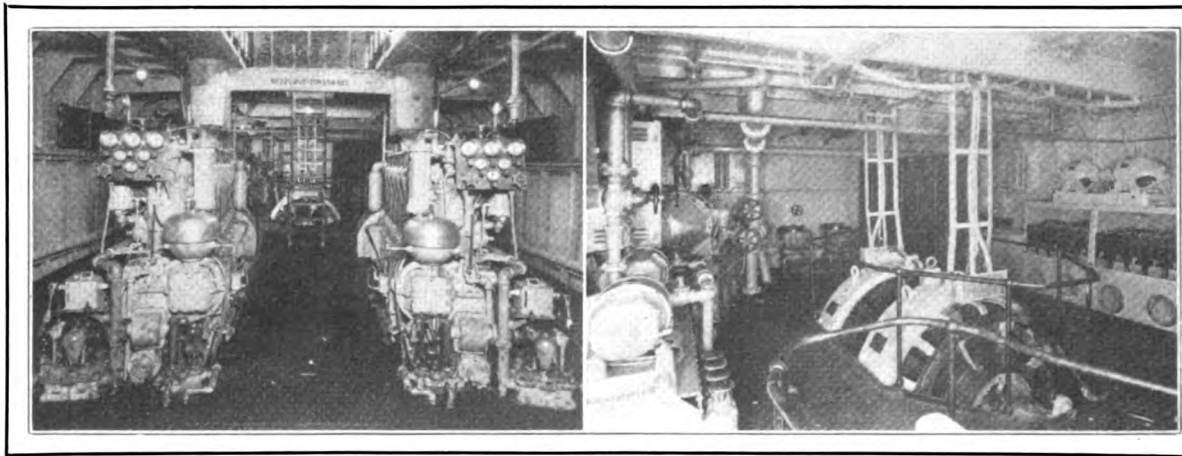
The Westinghouse company also furnished the electric motors for driving these auxiliaries.

The drill boats were designed primarily for the shifting of floats and barges adjacent to piers, the Pennsylvania railroad marine department being the pioneer in the use of this type of boat. They are double ended and identical in shape and arrangements, with propellers at both ends. Each propeller is fixed to the propeller shaft driven by the double armature main motor.

They are of specially unique designs to meet the difficult maneuvering conditions under which a tug must operate in shifting floats and barges in and about the congested piers of Manhattan and the Jersey shore. In approaching the design of these boats the marine department of the Pennsylvania railroad had experience to draw upon from the operation of their first diesel electric tug, the P.R.R. No. 16.

There is installed a steering gear mechanism and rudder which can be connected in parallel and controlled from one controller in the pilot house for clear water operation. When both rudders are effective the steering moment is doubled with consequently greater maneuvering ability. Should there be ice in the river the rudders can be operated independently in which case the forward rudder is fixed in the neutral position and acts therefore merely as a part of the bow of the vessel.

The annual meetings of the Institution of Naval Architects is to take place March 28 and the two following days in the lecture hall of the Royal Society of Arts, John street, Adelphi, W. C. 2, London.



Engine Room of Drill Boat P. R. No. 15—At Left Diesel Generating Sets—At Right Propelling Motor

Equipment Used Afloat, Ashore

New Type High Speed Engine Indicator—Make Large Roller Bearings Self-Aligning—Electrically Operated Bascule Lift Bridge

A CONVENTIONAL indicator of piston and cylinder type is useless for work on engines running at speeds over, say, 600 revolutions per minute, chiefly due to the distributing effect of dynamic forces, set up by the reciprocating parts of the recording system.

The two fundamental dynamic phenomena which have to be dealt with in building a reliable mechanical indicator are: first, the inertia of the moving parts due to their weight, and second the state of vibration set up in the recording mechanism by the periodic force exerted upon it due to the pressure cycle. These vibrations are mainly of the nature of resonant vibrations.

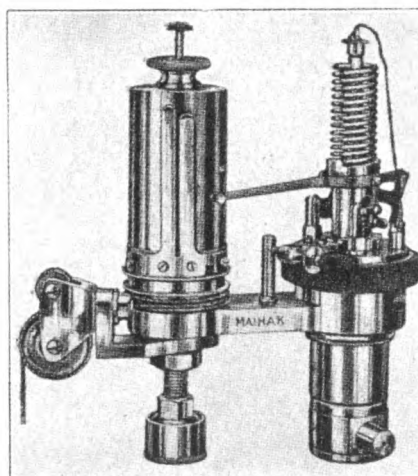
By increasing the natural frequency of the recording system sufficiently above the frequency of the pressure impulse, these vibrations become gradually less and less in magnitude and are damped out entirely by the internal friction of the instrument.

This condition is said to be a feature of the Maihak high-speed indicator made by the Bacharach Industrial Instrument Co., Pittsburgh. Its suitability for high-speed engines may be best appreciated from the fact that the natural frequency of the recording system approaches or even exceeds 1000 per second, whereas the natural frequency of the conventional indicator is in the neighborhood of 300 per second. This high frequency is accomplished chiefly by employing the cantilever spring of uniform strength in place of the familiar helical spring. A further advantage of this type of spring lies in the essential fact that a very light and short piston rod can be used whereby a remarkable reduction of its weight is accomplished.

What a light recording mechanism means with regard to its precision will be best appreciated by considering the other dynamic phenomenon which has to be overcome in the design of a reliable mechanical indicator; the disturbing effect of the inertia forces which are set up by the reciprocating parts actuating the marking point, while they are changing their rate of speed. The inertia is proportional to the moving mass multiplied by the square of its velocity, and the en-

ergy required to bring it to a stop is the product of space through which the mass moves in being accelerated or brought to rest and the accelerating or retarding force. The effect of inertia on the indicator card results in increase of the card area due to the marking point over-running or lagging behind its true position. From the preceding, it is evident that the movement of the marking point will respond faster to the pressure change beneath the indicator piston (1) the stiffer the indicator spring, (2) the lighter the recording mechanism and (3) the shorter the piston stroke.

These three conditions have been



HIGH SPEED INDICATOR FOR ENGINE HORSEPOWER

fulfilled in the design of the high-speed indicator shown in an accompanying illustration, to a degree heretofore thought impossible to accomplish in the mechanical type of indicator.

Without undue increase of weight the cantilever spring of uniform strength can be built stiff enough to resist the excessive load of internal combustion engines, without reduction of the area of the piston as is required in the conventional indicator. Thus the accelerating and retarding force acting upon the pencil mechanism is considerably increased.

Due to the arrangement adopted in the construction of the instrument the inertia forces set up by the oscillation of the spring are insignificant. From the theory of the cantilever beam of uniform strength it is evident that the deflection of the

spring is inversely proportional to its cross-section. In other words, the maximum movement of the spring takes place at the point of least mass and decreases towards the point of support where the mass is greater.

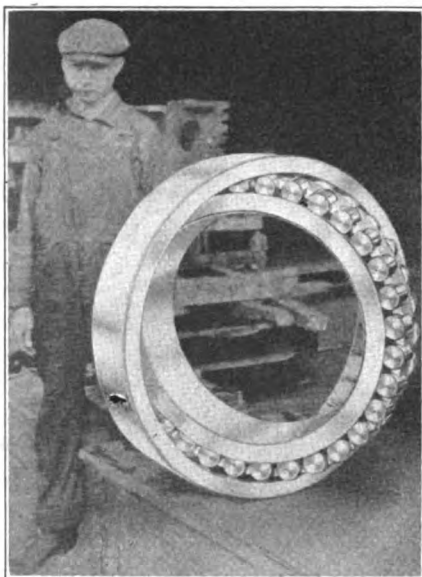
A radical reduction of the piston movement has been accomplished by using a straight line motion with a multiplying ratio of one to eight, whereby sufficiently large vertical motion of the marking point is obtained by an exceedingly short piston stroke. At the same time the recording system is considerably refined and reduced in weight, without sacrificing its robustness and strength. The departure from established practice in this direction may best be realized by the fact that the total weight of the piston, piston rod and link-work for parallel motion of this high-speed indicator is but 10 grams as compared with approximately 40 grams of a conventional indicator of the outside spring type.

Large Roller Bearings Are Self-Aligning

Two huge S K F spherical bearings, of the type shown in the accompanying photograph, the largest of their kind in actual service the world over, have been successfully operating for a period of over three years in a "cylpeb" cement mill at the plant of the Dexter Portland Cement Co., Nazareth, Pa. These bearings, almost three feet in diameter, are carrying the load of a 5½ feet by 26 feet tube mill used in pulverizing. The mill is driven by a 250 horsepower motor at a speed of 26 revolutions per minute. The load is 50 tons or 25 tons per bearing.

During the three-year period, these bearings have been on the job continuously and, the only attention required has been replenishing of lubricant several times a year. In addition to carrying heavy thrust and radial loads, an important feature is that they are self-aligning. Any inaccuracies in setting up and settling of foundation is compensated for within the bearings without the need of any external aligning devices or the setting up of internal strains or stresses.

These bearings, in principle, differ from the conventional type of roller



LARGEST SELF-ALIGNING ROLLER BEARING

bearing in that they are self-contained and non-adjustable units. They are made of high carbon chrome steel and uniformly hardened throughout. The rollers are of a barrel shape, and each of the two rows of rollers is permitted to operate independently of the other. The rollers and races are made from charcoal steel, a product of the manufacturers' iron ore mines and steel mills in Sweden. Each roller is drop-forged and individually turned between centers to the highest precision.

In frictional characteristics, the spherical bearings run a close second to ball bearings. They are made with as much care as are ball bearings, from the standpoint of materials, workmanship and finish.

It is possible that the application of somewhat similar bearings might be made with advantage in reducing friction and preventing undue shocks in the main propelling and auxiliary machinery on shipboard. Both proper alignment and frictional losses are of serious concern to the marine engineer.

A Bascule Lift Bridge Over Flushing River

The largest trunnion bascule lift bridge east of Chicago, and probably the largest of its exact type in the world, spans the Flushing river to Flushing, Long Island within the city limits of New York. It is known as the Roosevelt avenue bridge.

The bridge consists of two movable leaves which turn upon huge trunnions and open like the blades of a jackknife to permit the passage of ships. Each leaf is 152 feet long

and weighs close to four million pounds. So delicately is this great weight counter-balanced, however, that four 80-horsepower electric motors can open or close the bridge in 45 seconds against the pressure of a 25 mile-an-hour wind. Three hundred and twenty-eight horsepower of Westinghouse motors provide the motive power. The clear height of the bridge is 25.6 feet above mean high water, which is sufficient to permit the passage of ordinary tug-boat traffic without opening the bridge.

An unusual feature of this bridge is that it is double-decked. The upper level carries three-rapid-transit railroad tracks, and the lower provides a very much needed vehicular thoroughfare for this locality.

Special attention has been given to insuring complete safety in the operation of this bridge, and the engineers of the department of plant and structures of the City of New York, assisted by the engineers of the Westinghouse company, have devised a system that is regarded as completely adequate.

this operation automatically energizes the bridge's motive power circuits.

The bridge operator is now able to start successively the various motors which perform the following functions:

1. To withdraw two huge steel bolts, weighing 400 pounds each, which lock the two leaves of the bridge together while in closed position.

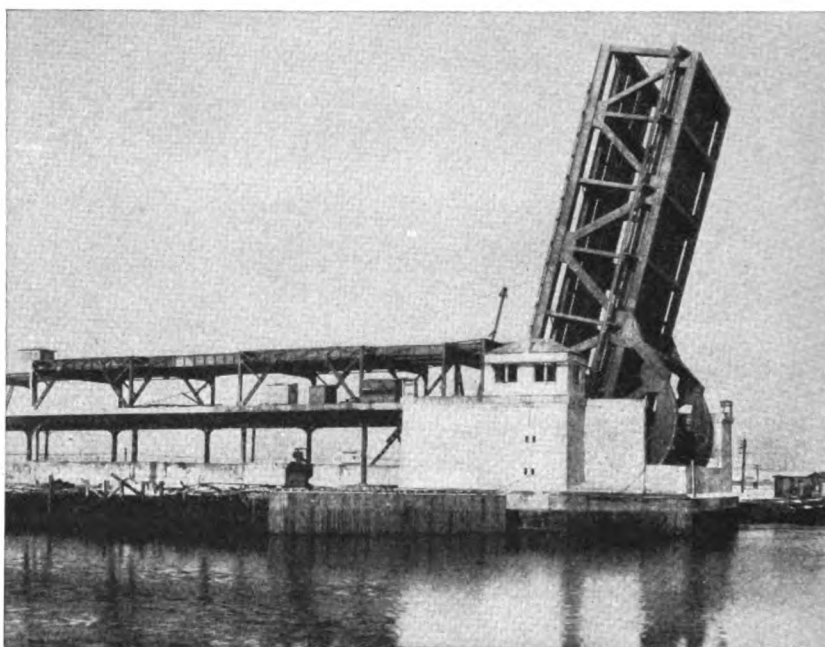
2. After the bolts are fully withdrawn the tail lock struts which brace the bridge leaves at their shore ends are withdrawn.

3. The bridge leaves are lifted and open the way for the vessel.

After the passage of the vessel, the bridge operator closes the bridge and locks it, and not until everything is in perfect order, can the towerman set "clear" signals for the trains.

This system is so arranged that each step in the process of opening or closing the bridge must be taken in exactly the right order, and no step can be taken until the previous one has been properly completed. A

(Continued on Page 36)



ONE WING OF BASCULE LIFT BRIDGE ACROSS FLUSHING RIVER FLUSHING, N. Y.

When a ship, which is unable to go under the bridge, wishes to pass up the river, it signals the bridge operator. The operator is unable to move the bridge, however, for all motive power circuits on the bridge are normally dead. His first step is to signal to the towerman controlling the operation of the trains that he wishes to open the bridge.

The towerman then sets the signals against the trains (which, however, he cannot do until the bridge and its approaches are clear of trains), and

Marine Statistics for Jacksonville

(Exclusive of Domestic)

Month	—Entrances—		—Clearances—	
	No.	Net	No.	Net
January, 1928	26	71,686	27	71,721
December	25	59,744	27	72,636
November	33	72,807	30	74,876
October	26	66,539	24	62,881
September	21	56,916	24	58,165
August	30	77,997	31	86,771
July	26	69,813	27	68,595
June	32	79,910	26	65,919
May	31	73,616	32	70,715
April	23	51,137	21	54,964
March, 1927	27	69,984	28	74,495

Brazilian Service Is Established by Board

The shipping board on Feb. 14 voted the establishment of a line of cargo ships to be operated from New York and Philadelphia and probably one other Atlantic port of the United States to ports on the northern coast of Brazil.

The Colombian Steamship Co., which has extensive interests in American flag tonnage in the Caribbean trade was selected by the board to be the managing operator for the new line. The line will be organized at once and service will be commenced as soon as satisfactory plans are completed by the managing operator and the Merchant Fleet Corp.

The new line will have four ships of approximately 5000 deadweight tons each. The vessels are the EASTERN PILOT, the EASTERN KING, the EASTERN BELLE and the EASTERN MAID. All of these ships are coal burning steamers and are at present assigned to the reserve fleet at New York.

The proposed loading ports on south bound voyages are Philadelphia, New York and either Jacksonville, Savannah or Brunswick. On north bound voyages they are Ilheos, Victoria, Bahia and northern Brazil ports. The proposed discharging ports

on south bound voyages are Para and/or up river, Amazonas, Maranhao, Ceara, Cabedello, Pernambuco, Maceio, Bahia and Victoria (three or four ports total per voyage). Discharging ports on north bound voyages will be Boston, New York and Philadelphia (two ports total per voyage).

Marine Journal Sold

Fred B. Webster and Durward H. Primrose, for some time respectively business manager and managing editor of the *Marine Journal*, have purchased this publication from the Marvin interests. The magazine will be published semi-monthly as heretofore and the publication office will be located at 63 Beekman street, New York City. The many friends of the new owners will wish them success.

Plane on Ile de France

The repairs to the turbines of the French liner, ILE DE FRANCE, have progressed to a point where it can be definitely stated that she will be ready for her scheduled sailing from Havre, March 7. During the enforced lay-up a mechanism has been installed to catapult from the deck of the vessel the airplane which will be used as the vessel approaches New York and Havre.

Bascule Lift Bridge

(Continued from Page 34)

signal light on the operator's desk at the controllers indicates the proper performance of each step. Should anything jam or should power fail, everything becomes locked in position so that no part of the mechanism can "run wild." The leaves do not open or close completely in a single movement, but stop just before they reach the end of their travel, the last few inches being taken at a very low speed. This prevents damaging the bridge structure by slamming it against the stops. Duplicate motive power equipment is provided to insure continuous operation should any piece of apparatus go out of commission for any reason.

The total cost of the bridge and its approaches is \$2,700,000. The bridge was constructed under supervision of the department of plant and structures, Albert Goldman, commissioner, and Edward A. Byrne, chief engineer. The Arthur McMullen Co. was the general contractor, and the McClintic-Marshall Co. fabricated and erected the steel superstructure.

A pioneer shipbuilder of the Great Lakes, Earnest A. Nagel, 59 years old, died at Lorain, O., Jan. 25. He worked for the American Ship Building Co. for 36 years.

Diesel Engined Purse Seiner Makes Good Run

PURSE seiner MARIE JOAN, shown in the accompanying illustration, owned by John Gabellich, president of the Fishermen's Co-operative association of San Pedro, Calif., is a vessel 77 feet 8 inches long overall by 19 feet 2

inches in beam and 8 feet molded depth. She was built at the yard of J. M. Martinac & Co., Tacoma, Wash., and is powered with a 4-cylinder Washington-Estep marine diesel engine, with cylinders 11½ inches in diameter and a

stroke of 16 inches and develops 180 brake horsepower at 250-280 revolutions per minute. The average running speed is 11 knots.

This vessel is one of the fastest fishing boats on the Pacific coast, and will engage in tuna fishing off the Mexican coast, about a thousand miles out of San Pedro. She will also engage in sardine fishing during the season. After the vessel left Puget sound for the south, she made the run from Cape Flattery to San Pedro in 114 hours, which included ten hours when the vessel was hove to to ride out a particularly bad storm. The vessel had heavy weather during the entire trip, as she did not leave for the south until December, one of the stormiest months of the year on the Pacific. On this run her sea-going qualities and motive power were given a severe test and her performance was entirely satisfactory.



Late Decisions in Maritime Law

Legal Tips for Shipowners and Officers

Specially Compiled for Marine Review

By Harry Bowne Skillman

Attorney at Law

LIABILITY for injuries to a chartered lighter rests primarily on the one who placed and kept her in an obviously unsafe position, it was held in *Soderberg v. Atlantic Lighterage Co.*, 17 F. (2d) 180; but where the charter provided that the charterer would return a barge at the end of the term in as good order as when taken, except for ordinary wear and tear, the charterer is secondarily liable for injury occasioned by another to whom it had intrusted her.

FISH caught in the open sea or in foreign waters and brought into the United States are "imports" within the provision of the constitution prohibiting states from laying duty on imports; whether they are articles of commerce in the ordinary sense is wholly immaterial.—*Gulf Fisheries Co. v. Darronzet*, 17 Fed. (2d) 374.

UNDER the ship mortgage act of 1920, a mortgage is valid as soon as executed and recorded, even before its indorsement upon the ship's papers, but it does not have a priority over a lien on the vessel which attaches in the interval between the recording and the indorsement. *HENRY W. BREYER*, 17 F. (2d) 423.

REVISED statutes of the United States defined the word "vessel" as "every description of water craft or other artificial contrivance, used or capable of being used as a means of transportation on water." Under this definition, a house boat, not permanently attached to the shore, though without motive power, was held, in the case of *ARK*, 17 F. (2d) 446, to be a vessel and subject to a maritime lien.

IN THE case of *McDonald v. Hitchcock, Lloyd & Co.*, 17 F. (2d) 449, the court held that a tug which, after collision of a barge in tow and the beaching of it to prevent sinking, offered to aid in transshipping the cargo, which offer was not accepted, was liable to the cargo owner for loss of part of the cargo, which was admittedly undamaged at the time of beaching, irrespective of its liability to the barge for any negligence causing collision.

SEAMEN had a right to discontinue their services because of breach of contract by the requirement that they work 10 hours a day when the contract called for only 8 hours' work a day, it was decided in the case of *MOUNT EVEREST*, 17 F. (2d) 478; and such seamen were not guilty of desertion by leaving the ship because of the violation of their contract

rights, but were entitled to wages at the contract rate for the time they served, to compensation for the work they were required to do in addition to what they contracted to do, and to damages for the breach of the contract.

WASHINGTON statute, giving lien against vessel for injuries to seamen, does not extend to representatives of decedent for wrongful death; nor can an administrator of a deceased seaman recover in an action in rem against a ship for his death, which was caused by the negligence of the master and officers in placing a portable gang plank.—*PRESIDENT MADISON*, 17 F. (2d) 526.

UNDER the principle of salvage law that no award can be given for futile efforts, however meritorious may have been the exertion, it was decided in the case of *W. C. SMITH*, 17 F. (2d) 607, that a vessel, which succeeded in arousing the sleeping crew of a burning schooner and then went in search of assistance, which efforts did not contribute to success of the salvage operation, was not entitled to a salvage award.

SALVAGE award of \$750 for services rendered vessel valued at \$60,000, stranded in exposed shallow waters in hurricane season, by vessel valued at \$150,000, was increased to \$5000, in case of *De Aldamiz v. Th. Skogland & Sons*, 17 F. (2d) 873; in case of *Cooley v. Standard Oil Co.*, 17 F. (2d) 950, an award of \$4000 was given a Mississippi river packet, worth \$35,000, which towed to the bank and made secure a tug with tow of eight barges laden with oil, valued at \$270,000, and which was drifting with the current and without means of anchorage; and in *Rodriguez v. Bagalini*, 17 F. (2d) 921, the court held that a false claim as to the extent of the service rendered and false testimony to support the same will justify denial of any award for salvage or reduction of the amount.

IT IS a matter of common knowledge," said the court in the case of *Willey v. Alaska Packers' association*, 18 F. (2d) 8, "that all of us from time to time have colds from one cause or another, and that we do not call a physician or go to a hospital therefor." Therefore, the court was not willing to hold that it is the duty of a master of a vessel to send to a hospital every seaman who is afflicted with a cold or a cough and whose physical appear-

ance does not indicate that he is unable to continue to perform his duty as a seaman; and especially in cases where the seaman makes no representation that he is unable to work, makes no request for hospital service or for medical treatment, and whose only request is for medicine for a cold or cough.

IT IS always to be presumed, in the absence of positive evidence to the contrary, that a local pilot employed for the occasion and actually on the bridge is in charge of the navigation of the ship, subject to the authority of her master, it was declared in the case of *United States v. Jacksonville Forwarding Co.*, 18 F. (2d) 39.

IN THE absence of any explanation by a tug, in whose custody a hawser remained, as to when and how a cut in the hawser, which left it with about two-thirds of its strength, was made, resulting in loss of the tow when it parted, the court will assume that it existed when the tow was made up. While a tug is not an insurer of its hawsers, if they are in fact unsuitable for their purpose, she is prima facie at fault, and she is bound to show that the defect could not have been discovered by a reasonable inspection.—*PORTCHESTER*, 18 F. (2d) 75.

CONGRESS intended, by the United States arbitration act of 1925, to abolish the old rule, established in the jurisprudence, by which the Federal courts refused to enforce arbitration agreements. However, the act seems to contemplate only such arbitration agreements as would be or could be carried out in the United States, within the jurisdiction of and under the control and orders of the United States courts. Therefore, declared the court in the case of *SILVERBROOK*, 18 F. (2d) 144, a provision of a charter party that any dispute thereunder shall be settled by arbitration in London by arbitrators chosen by the parties in the manner provided by the English Arbitration act, is not within its provisions.

IN THE absence of special circumstances or valid limitation, damages for nondelivery of goods are the market value thereof when and where they should have been delivered, less whatever the cargo owner would have been obliged to pay to get them; e.g., freight and/or customs duties.—*CARO VILLANO*, 18 F. (2d) 220.

New Corporation Formed

To Study Waterway and Terminal Problems for Cities, States and Industrials

IN THESE days of intensive effort to reduce cost and increase efficiency industrial concerns located within access of water transportation, might with profit go thoroughly into a study of their present transportation costs both in receiving raw materials and in delivering finished products. To specialize in such studies the Maritime Engineering Corp. Inc., 608 South Dearborn street, Chicago, was recently



MAJ. RUFUS W. PUTNAM

organized. It is the purpose of this corporation to do general engineering work in connection with waterway and water terminal development for states or municipalities and industrial concerns having water transportation facilities.

The organizers of the new company are Major Rufus W. Putnam, recently of the corps of engineers of the United States army, president and treasurer and Leathem D. Smith, vice president.

Major Putnam is well known in engineering circles on the Great Lakes. He graduated at the United States Military Academy, West Point, in 1913. For thirteen years after graduation he served with distinction in the corps of engineers of the army attaining the rank of major. From 1921 until 1926 he occupied the responsible position of United States district engineer at Chicago. One of his chief problems during this period was the controversy over the

diversion of water from Lake Michigan through the Chicago sanitary canal. He was instrumental in preparing the permit which now binds Chicago to definite performance.

In July 1926 Major Putnam resigned from the engineer corps of the army to accept a commission as chief engineer of the harbor plan of Chicago. He was retained and the plan was worked out under the auspices and with the financial support of the Commercial club of Chicago, an organization of public spirited business men. The harbor plan is completed and a comprehensive report has been prepared by Major Putnam and is now being issued. More will be said of this plan a little later on. Major Putnam is president of the Western Society of Engineers, first vice president of the Illinois section of the American Society of Civil Engineers and chairman of the Midwest Power conference.

The vice president of the new corporation, Leathem D. Smith is perhaps best known for his achievement in the development of the self-unloader boat for Great Lakes bulk cargo trade. His father Thomas H. Smith was a pioneer settler (1870) of Sturgeon Bay, Wis. and engaged in the sawmill, lumbering and transportation business. Leathem D. Smith was born at Sturgeon Bay, Wis., 1886 and graduated in civil engineering at the University of Wisconsin in 1909. From 1909 until 1914 he received a varied business experience and training under his father, doing some breakwater contracting and small wrecking jobs. After the death of his father in 1914 he continued at Sturgeon Bay engaged in breakwater construction marine salvage and the crushed stone business.

In 1917 he organized a shipyard and during the war period completed nine seagoing tugs for the shipping board. Then in 1920 he organized the Leathem D. Smith Stone Co. and the Leathem D. Smith Dock Co. both of Sturgeon Bay. Always closely associated with transportation he applied his engineering skill to the development of self-unloader apparatus suitable for converting existing bulk freighters. His unloader system was patented, as was that for a method of sand de-

watering for loading sand boats with dredging pumps without the necessity of putting free water into the cargo hold.

Mr. Smith is also connected with the Leathem Smith-Cliffs Co., Smith-Truby Sand Co. and he is president of the Door County State Bank, Sturgeon Bay.

The report of the Chicago harbor plan issued by Major Putnam and referred to above recommends the creation of new harbor facilities at the mouth of the Chicago river; the building of an Illinois waterway barge terminal at Crawford and Cicero avenues, Chicago; construction of a Lake Calumet industrial barge harbor; building of an interstate or state-line harbor; and the providing of a direct water connection with the Indiana industrial areas and Lake Calumet. The plan ultimately would call for an expenditure of \$150,000,000, and the cost of the start on the preliminary units is estimated at less than \$5,000,000. An intensive development around the Municipal pier at Chicago, involving the construction of a second and parallel pier for lake and ocean-going passenger and freight



LEATHEM D. SMITH

steamers, is proposed, with connecting tracks with the Illinois Central and Chicago & North Western railroads.

The Calumet industrial harbor to be located south of the mouth of the Calumet river, according to the recommendations, would include warehouses, piers and elevators with industrial sites where inland and ocean-going vessels from lake and European ports could exchange freight with barges operating through the Illinois and Mississippi waterway.

Apply Isherwood System

The twentieth year of activity for the Isherwood system marks an epoch in ship construction development inasmuch as this year's return shows still more remarkable progress in the adoption of the bracketless system (which is really an improved Isherwood system) than the year 1926—actually the year of its introduction. At the end of 1926, there were built and contracted for on the new system, 14 vessels aggregating 180,000

tons deadweight carrying capacity, which at the close of 1927 has increased to 41 vessels representing 412,000 tons deadweight and with the ships placed on the pure Isherwood system a total of 67 vessels have been contracted for in the year.

James Wells Barber, former head of the Barber Steamship line, died Feb. 18 at Pinehurst, N. C. Mr. Barber retired from active business six years ago. He was very well known.

Appointed Field Agent

Winfield M. Thompson, publicity manager for the International Mercantile Marine Co. since 1920, has been appointed field agent of the Panama Pacific line, a new position, in which his duties will be the promotion of good will for the coast to coast service, largely through educational channels. From Feb. 15, Mr. Thompson will be associated with the Pacific coast staff, with offices at San Francisco and Los Angeles.

Change Freighters to Diesel Electric

CONTRACTS have been awarded for the complete electrical equipment of the shipping board freighters **DEFIANCE**, **TRIUMPH** and **COURAGEOUS** which are being converted to diesel-electric drive. The **DEFIANCE** is being converted at the Norfolk navy yard, the **TRIUMPH** at the Boston navy yard and the **COURAGEOUS** at the Federal Shipbuilding and Drydock Co., Kearny, N. J. The order for all of the electrical equipment of the first two went to the Westinghouse Electric & Mfg. Co. and for the latter to the General Electric Co.

The vessels are having their present 3000 shaft horsepower steam propelling machinery and steam auxiliaries removed, and 4000 shaft horsepower diesel-electric propelling machinery with complete electric auxiliaries installed. This increase in the propulsive horsepower, with changes to be made in the bow and stern of the vessels to improve their stream lines, and a new propeller designed for 60 revolutions per minute, are expected to give the freighters a speed in excess of 13 knots, as compared with their former speed of 10½ knots. Plans and specifications for the conversions were prepared by

Gibbs Bros. Inc., of New York with the co-operation of Admiral D. W. Taylor, and all work in connection with the conversions is under the supervision of Gibbs Bros. Inc.

The electric form of propulsion was decided upon in preference to a direct drive diesel engine, largely because of the saving in cost, weight and space in favor of the electric drive where comparatively low propeller revolutions are desired. Careful comparative studies of the electric and direct drive forms of propulsion showed that many advantages would be derived not only in the installation, but also in operating features of the vessels to be converted.

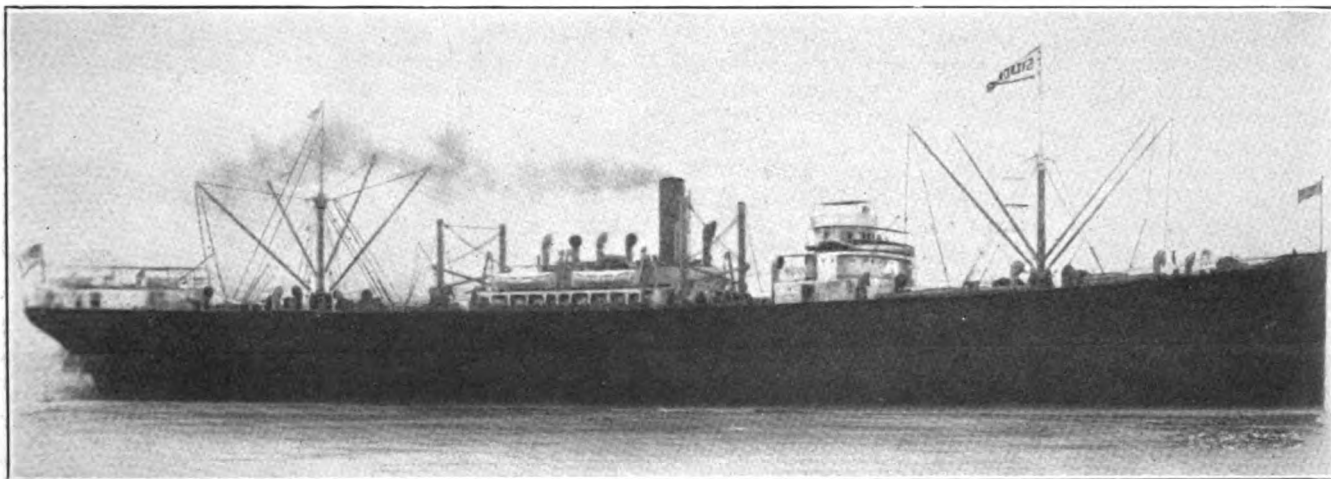
The vessels will be driven by a 1500 volt double armature, direct current, forced ventilated motor of 4000 shaft horsepower at 60 revolutions per minute, which is directly connected to the propeller. Power for the propulsion motor will be supplied by four main generator sets, each of which comprises a McIntosh-Seymour diesel engine, directly connected to an 800-kilowatt 250 revolutions per minute, 375-volt main generator and a 100-kilowatt, 240-volt direct current auxiliary generator and exciter.

In the Westinghouse units, that company's variable voltage propulsion control equipment will be installed with dead front control panels and arranged for both pilot house and engine room control.

All deck auxiliary machinery will be electrically driven and will consist of one warping and twelve deck winch water-proof motors of 25 horsepower, and one watertight anchor windlass motor of 65 horsepower. The magnetic brakes and master controllers of the deck motors are all of water-proof construction.

The steering gear will be driven by a 45 horsepower motor operating on the variable voltage control system. The control is so arranged that the vessel can be steered automatically by means of a Sperry "metal mike" or manually from the bridge or after station. Motors and control will be furnished for driving all engine room auxiliaries electrically.

Power for auxiliary machinery when the vessel is in port will be taken from one of the main generator units thereby making the installation of an auxiliary generating plant for this purpose unnecessary. A 36-kilowatt diesel driven generator is supplied for "stand-by" purposes.



S. S. TRIUMPH—SHIPPING BOARD STEAMER NOW BEING CONVERTED, WITH TWO SISTER VESSELS, TO DIESEL ELECTRIC DRIVE

Dock Management Progress Section

How Successful Dock Operators Have Met
Problems of Giving Best Service to Ships



Portland, Ore.—Air View of Lower Harbor—Willamette River Looking Northwest

Portland Serves the Northwest As a River Seaport to the Pacific

By Erwin A. Taft

THAT Portland, the great river and ocean gateway of the Pacific coast of America, already a major port, is destined to be one of the world's chief shipping centers, is evident by an impartial survey of its surroundings.

A seaport having an elongated harbor that is also a deep and ample river, is not handicapped in the race for world commerce as against salt water ports. This is proven by numerous notable examples. London is sixty miles up the Thames from the North sea—Hamburg an equal distance from the mouth of the Elbe—New Orleans is ninety miles from the point where the Mississippi pours its muddy waters into the Gulf of

Mexico. Portland is slightly more than this distance from the mouth of the Columbia river, the most majestic of all the world's great navigable streams. The Columbia pours into the Pacific a volume of water as great as that of the Thames and the Elbe combined, and, in this country, second only to the Mississippi—the Father of Waters.

The harbor of Portland begins at the mouth of the Columbia, 160 miles south of the Straits of Juan de Fuca and 610 miles north of San Francisco bay.

Atmospheric Conditions Are Good

That the sea area of the Columbia's mouth is a favored zone for the navigator is shown by the fog records kept on the lightships, marking the entrances to three harbors on the Pacific coast. The record of

fog as averaged for ten years shows that the Columbia entrance has fog interference of only 50 per cent of that at the Straits of Juan de Fuca which is the entrance to Puget sound, and but 40 per cent of that at the entrance of San Francisco bay. This shows the Columbia to have the fairest and easiest approach of any harbor on the coast. The river and the harbor of Portland is open to navigation throughout the year. Free and easy transit, unhampered by flood, storm or ice, is guaranteed to shipping at all times.

The first survey of the mouth of the Columbia was made by Admiral Vancouver in 1792. At that time the river met the ocean on a front of more than six miles, the depth ranging from shoal water over the shore spits to the main channel depth of around 20 feet at mean low water.

The author, Erwin A. Taft, is manager of the foreign trade department of the Portland (Oreg.) chamber of commerce. The aerial photographs used as illustrations were taken by the Brubaker Aerial Surveys, Portland, Oreg.

This section between the high head-land on the north and the low-lying Clatsop spit on the south, was the formidable Columbia river bar. Once inside the bar the lead showed depths of from 40 to 50 feet for long stretches of the river. Congress first appropriated money for the improvement of the mouth of the Columbia in 1884. The next year work was commenced on the four-mile-long jetty projecting riverward and outward from the south side of the harbor entrance. The thirty years following saw the south jetty extended to a total length of 6¼ miles, and also saw the completion of a complimentary jetty 2¼ miles long deflecting the flow of comparatively shallow water across Peacock spit on the north side. Thus by the close of 1914 the great outward surge of the Columbia was confined to a space approximately two miles wide lying between flanking jetties. When thus confined the scouring energy of the ebbing current across the bar came into full play. The giant forces of nature went immediately to work doing what no man-made machinery could ever hope to do.

Channel Deepened by Current

Day by day, month by month, vast quantities of sand were eroded from the bar and moved out to the deep sea and lost. Thus the hateful bar at the mouth of the Columbia



Erwin A. Taft

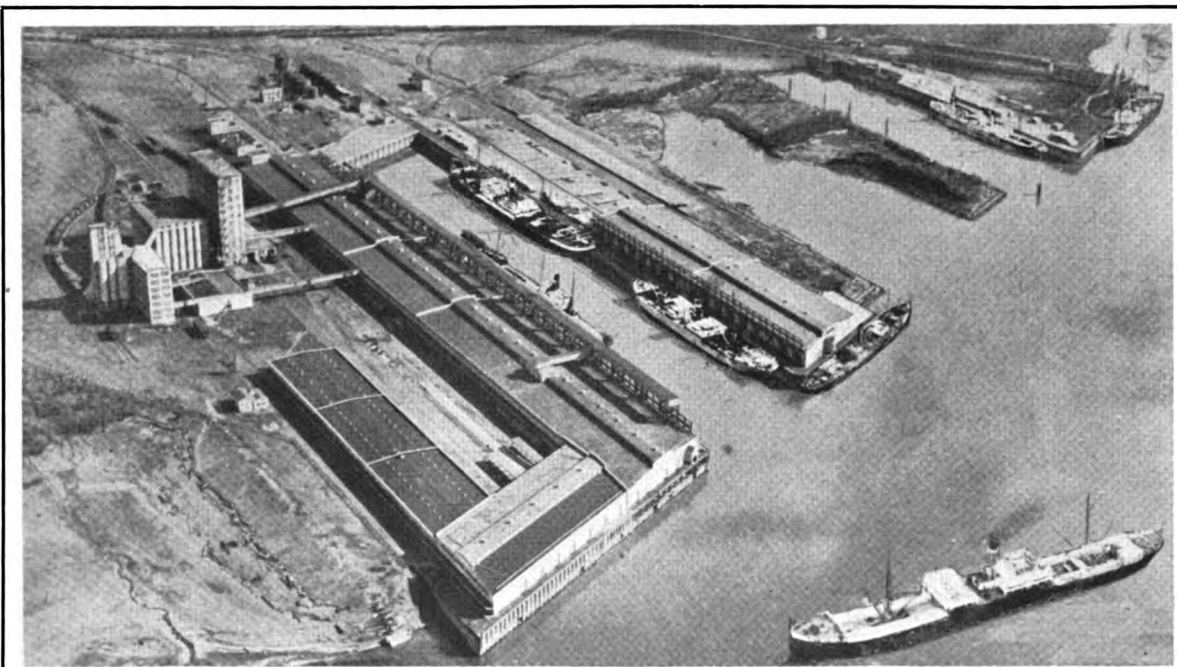
Manager, Foreign Trade Department

vanished completely. For the past eight or nine years the entrance to Portland's harbor at the mouth of the Columbia has been as free and unobstructed as is the harbor entrance to the port of New York. The United States engineers' survey of June 1927, showed a minimum depth at mean low water of 47 feet

for a width of half a mile and a minimum depth of 40 feet over a width of more than a mile. And the channel continues to widen and deepen. For a distance of 40 miles from its mouth, the river is in reality an estuary varying in width from 5 to 10 miles, thence on to Portland, a remaining distance of approximately 60 miles, its width varies from ¾ of a mile to 2½ miles. At a point about 100 miles up the river from the sea, the Willamette pours its deep heavy flow of water into the Columbia. The city of Portland is built astride the Willamette river. Its northern boundary is the Columbia river, while the city's extreme northwestern limits all but include the mouth of the Willamette as it enters the Columbia.

Natural Conditions Are Good

From its mouth to a point 12 or 14 miles up stream the Willamette river forms a broad, deep fairway for shipping from 1000 to 3000 feet in width with a depth of from more than 60 feet maximum to a minimum depth in the main channel of 30 feet at mean low water. It may be noted that even at this distance from the sea, the tides add from one to two feet to the depth twice each day. Adding the Columbia river frontage of the north harbor to that on both shores of the Willamette, Portland is shown to have nearly 30 miles of harbor line wholly



Municipal Dock Terminal No. 4—Portland, Ore., Harbor—Feb. 10, 1928



Loading One Thousand Tons of Wheat Per Hour at a Municipal Pier.

within the city limits.

That the site of Portland, now a city of 350,000 people, was the logical and strategic place for the building of a metropolis, is due to natural conditions. Men build cities, but nature, in making the topography, indicates where cities shall be built. The early navigators of the Columbia found depth of water and to spare, all the way up river from the sea, until they reached the mouth of the Willamette, above which point, though still majestically wide, it shallowed decidedly. However, when the navigator left the Columbia and

turned the nose of his vessel up the Willamette, he found all the depth he could wish for, yet it was wide enough to furnish a harbor for all the fleets of the seven seas.

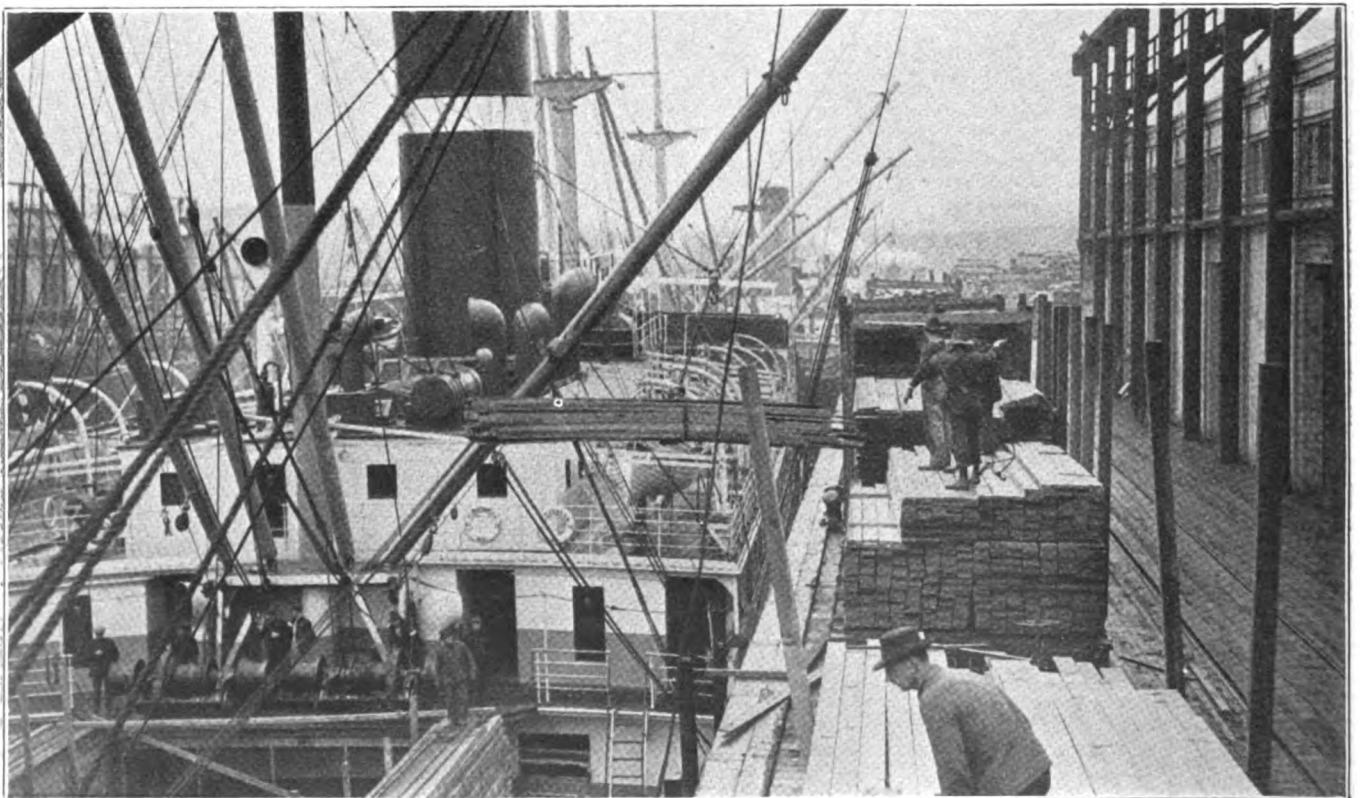
The advantage of deep sea navigation for one hundred miles inland offered by the lower river, assured the building of a city at the mouth of the Willamette. But the situation presented other striking advantages. Above the mouth of the Willamette, the Columbia river may be followed easterly through the Cascade mountains for more than 1000 miles. That the Columbia is the only river in

the United States to pierce that mountain barrier and empty its waters into the Pacific ocean is a noteworthy fact. The Columbia is easily navigable by river steamers for 300 miles above Portland, while the Snake river, its great eastern tributary, adds another hundred miles of navigable water. These navigable waters with the widely extended upper reaches of these rivers, constitute the Columbia river watershed—250,000 square miles in area, known as the Inland Empire. Portland is the natural market place for all this vast area, if not by boat, at least by rail following the water-grades from points of origin to ship's side.

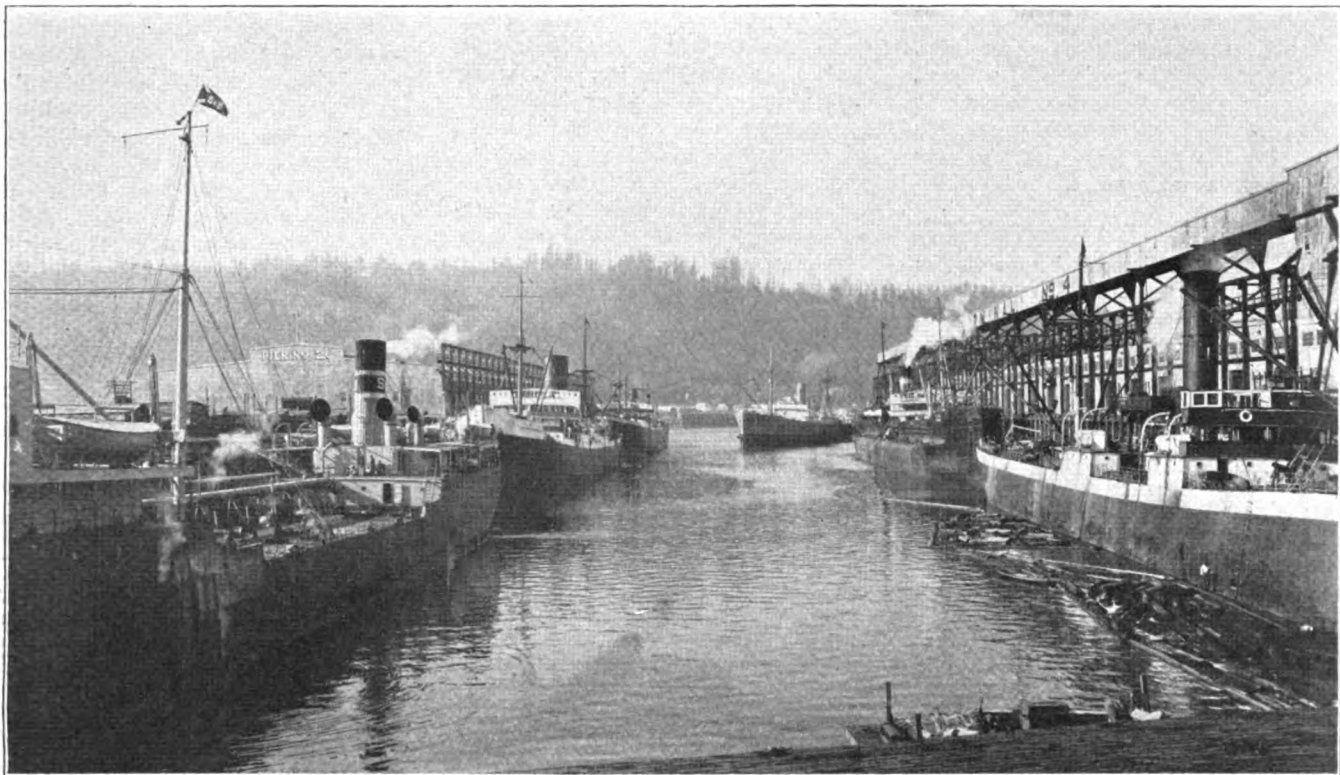
Has Large Foreign Trade

But after full credit has been given all of these natural city-building advantages, it must be admitted that much remained for the hand of man to do before a metropolitan port became a reality. During the year 1927, 1678 ships entered and cleared from the Portland harbor. These ships displayed the house flags of 57 lines, representing 11 foreign countries. They floated cargo aggregating 5,065,995 tons, valued at \$277,568,568.

It is said commerce follows the flag, but as far as the modern world port is concerned, between the flag and commerce is the civil engineer and side by side with him stands the paymaster. The federal government,



Loading Lumber Direct from Rails to Vessel at Portland, Ore.



Basin No. 1 at One of Portland's Publicly Owned Terminals

slow in moving as always, has, after all, contributed heavily toward the making of the world port. By the construction of the great rock jetties at the mouth of the Columbia, the utter elimination of the bar was accomplished, rendering ingress and egress by the largest vessels afloat easy and safe.

In addition the government maintains all necessary aids to navigation such as the lightship, seven miles off shore, marking the entrance to the river, and lighthouses at all guiding points, range lights and buoys, effectively marking the entire channel from Portland to the sea. The government also maintains a coast guard cutter on duty at the mouth of the river to render such service as may be required. Vessels inbound stop at Astoria for quarantine service and for fumigation. However, the surgeon general of the United States public health service has let it be known that his department is soon to establish cyanide fumigation at Portland where vessels may be serviced when more convenient.

Careful Harbor Development

All this service by the federal government, comprehensive though it may be, is not enough. Other undertakings must be planned and executed on a large scale if the river and the city are to measure up to world port standards.

To meet these demands for service,

two executive boards were created. The first was the Port of Portland, created by an act of the legislature in 1891, afterwards several times amended and strengthened. The second was the commission of public docks, created as a separate department of the City of Portland by charter amendment in 1910. It is due to the tireless efforts of these two commissions, the members serving without salary, that Portland now offers to the maritime world every aid and convenience for harbor movement and the prompt handling of cargo, available at any world port.

The record wheat movement fol-

lowing the harvest of 1927 demonstrated the capacity of the port to handle and dispatch cargo. During three months—September, October and November—approximately 34,000,000 bushels of wheat were dispatched from Portland in foreign trade. This was an average of 328,000 bushels for every working day. The floating of this amount of wheat required 160 ships which left down the river with either full cargoes or substantial parcels within that period. At the height of the loading, eight vessels were often on berth at one time loading wheat. During this three-months period receipts of wheat from the interior averaged 200 cars per



David Campbell—One of Portland's New Motor Fire Boats

day, while a total of 400 cars were delivered at terminals on some days. During all of this period, the arrival, loading and departure of carriers was so evenly balanced with rail receipts that scarcely an hour's delay was occasioned at any point.

Progressive Policy of Improvement

The Port of Portland commission has expended nearly \$15,000,000 in river and harbor development and in supplying maritime service and facilities to meet all requirements of the shipping of the port. It is through the efforts of this commission in co-operation with the federal government that a stabilized condition of the 30-foot channel for Portland to the sea now exists. This body operates four dredges, the new diesel electric dredge CLACKAMAS being one of the most

with the view of the most efficient service for the established industrial districts on the harbor. A water depth of from 30 to 35 feet at mean low water is maintained in slips and alongside all piers and wharves. The docks are provided with modern mechanical equipment including locomotive cranes, electric winches, freight elevators, adjustable ramps, cargo hoists, piling machines, gravity conveyors, and gasoline and electric tractors.

Port Facilities and Pilotage

Telephones are installed along the face of transit sheds, available at all times for the use of ships on berth. Ships may be connected with the terminal light circuits, charges for service based on metered consumption. At terminal No. 4 vessels

the distance involved in shifting.

Modern fire protection for Portland's thirty-mile harbor line is provided by a fleet of three new fire boats of the gasoline motor-driven type, recently put in service, replacing obsolete steam-driven equipment. These boats are each 85 feet in length, beam 20 feet, depth 9 feet 6 inches, draft 5 feet 6 inches, with a clearance above water of 12 feet 6 inches. The low clearance is necessary to permit their passage under the bridges spanning the upper harbor without waiting for draws to open. The power plant of each boat consists of four Sterling-Viking engines—two eight and two six cylinder units. The former are rated at 565 horsepower each and the latter at 425 horsepower each. Cylinders have a diameter of eight inches and a nine-inch stroke. With engines working at a maximum of 1200 revolutions per minute, a speed of 18 miles per hour is easily attained.

Each boat is equipped with Byron Jackson pumps, capable of discharging 9600 gallons of water per minute under a pressure of 200 pounds. A boat crew consists of a pilot, an engineer, a captain and three nozzle-men. A notable feature of the new boats is that all mechanical controls are centered in the pilot house under the sole direction of the pilot. These boats represent the last word in low cost of maintenance and operation coupled with high speed and efficiency. Service tests have demonstrated the ability of the boats to be out of their slips and into the stream in twenty-seven seconds, and within 136 seconds, the pumps were under high pressure throwing three full streams. They are capable of a speed of 18 miles per hour.

Portland, already a seaport of first magnitude, is by no means a finished product. Natural advantages that have made Portland a great city will make it still greater. With the bar at the mouth of the Columbia river gone, with a full 30-foot harbor and river channel an actuality, steps are being taken to remove the few remaining obstacles to a complete 35-foot project for the entire harbor and from Portland to the Pacific.

Streamline Rudder Sales

During the month of January, the Oertz Streamline Rudder Corp., 75 West street, New York City, announces, orders were received for its type of streamline rudder for 21 additional ships. This brings the total number of ships so fitted to 265 in less than three years' time.



Motor Fireboats Each Throwing 9600 Gallons of Water per Minute—Portland, Ore.

powerful dredges ever constructed. Two floating drydocks of 10,000 and 15,000 tons lifting capacity, with fully equipped machine and repair shops are maintained by the commission and kept ready for immediate use, as is also the powerful towboat PORTLAND, all operated on a cost basis not calculated to return a profit. The commission does no work on vessels but local contractors are equipped to perform all kinds of ship repairs for which competitive bids are readily obtainable.

The commission of public docks has constructed and owns and operates the wharves, warehouses, grain elevators, coal bunkers, cold storage plants, bulk oil handling and storage plants for wood and vegetable oils, and for fuel oil, and other harbor facilities, also four great municipal terminals with ample berthing space for seventeen vessels.

These terminals have been located

may coal at the commission's bunkers, replenish their fuel oil tanks, take fresh water and load and discharge cargo without leaving the terminal.

There are also many privately-owned docks and warehouses along the harbor front, rivaling the municipal docks in facilities and service.

The safe transit of vessels from off the Columbia river lightships to Portland docks is in the hands of an organization bearing the name Columbia river pilots. This body of hardy helmsmen is composed of twenty-six licensed pilots. A sufficient number are constantly on duty at Portland, subject to call at a moment's notice, while an equal number await the arrival of incoming vessels at the mouth of the river.

Pilotage either way is figured at \$1.50 per foot of draft plus one and one-half cents per net registered ton. The charge for harbor moves ranges from \$7.50 to \$20.00 contingent on

Up and Down the Great Lakes

Last Season's Record Cargoes—Quick Despatch—Chicago Harbor Project
—Lake Levels—Repairs to Lake Vessels—Sales—Appointments Made

THE rivalry among vessels of the Great Lakes for the honor of carrying record bulk cargoes is always keen. During last season it is reported that three cargo records were broken. These new records involve ore and rye and limestone. The honor for breaking the record in the first two commodities goes to the Canadian vessels, DONNACONA, formerly the W. GRANT MORDEN, and the LEMOYNE. The first brought down the lakes a cargo of 14,532 long tons of ore, while the latter carried a cargo of 538,817 bushels of rye, amounting to 15,087 short tons.

In the limestone trade, two American steamers last year each carried a larger cargo than any ship had ever carried before. The new turbo-electric self unloader, CARL D. BRADLEY, carried a record cargo of 15,724 long tons of limestone. The next highest cargo last year of limestone was 15,622 long tons, carried by the steamer L. E. BLOCK.

Rapid Cargo Handling

The annual report of the Lake Carriers' association is authority for the following figures on exceptionally fast unloading time. The WM. A. MCGONAGLE at the Pittsburgh and Conneaut dock, Conneaut, O., on June 27, 1927, was discharged of 11,445 long tons of ore in 2 hours and 20 minutes at a rate of 4905 long tons per hour. The same dock on May 5 last year, unloaded the steamer JAMES A. FARRELL of 10,658 long tons of iron ore in 2 hours and 30 minutes at a rate of 4263 long tons per hour. The previous high record for rapid ore unloading was at the same dock Sept. 12, 1921, when the steamer D. G. KERR unloaded 12,508 long tons of iron ore in 3 hours and 5 minutes at a rate of 4057 long tons per hour.

Expect Better Season

The noticeable pickup in the steel business, due to a number of factors and partly to the renewed activities of the Ford Motor Co., leads experienced shipping men on the Great Lakes to believe that the demand for ore will be greater the coming season than last. If there is a late opening

of navigation, and the middle of May is now the tentative date, the stored stocks of ore on the docks are likely to be completely depleted before the lake freighters get under way. If these conditions continue the coming season promises to be a good one for the lake vessel men.

Develop Calumet Harbor

Construction and development of Calumet harbor at Lake Michigan over a ten-year period through filling in partly submerged land and building two canals each 500 feet wide is advocated by P. H. Moynihan of the Illinois commerce commission in a report to the Chicago harbor committee. The plan provides for the creation of 1680 acres of land abutting navigable waterways by filling in at an estimated cost of \$12,000 an acre. This land then would be available for industrial purposes. Through the building of the two canals it is estimated that from 125 to 150 vessels a year will be moored there. Construction of docks and dredging would be carried on if industrial plants increased. The Chicago committee is expected to supplement this general program with tentative plans for the harbor. The project in its initial stages will be financed with \$4,000,000 to be raised by taxation in Chicago, as provided in legislation enacted at the last session of the Illinois legislature amending former harbor laws, and repealing the harbor act of 1921.

Moving Steel Scrap

Considerable study is being given by iron and steel scrap interests in the Chicago district to the possibilities of shipping scrap by water into eastern consuming centers during the coming Great Lakes navigation season. The most favorable method of transportation appears to be by Great Lakes vessel, but efforts are being made to induce the railroads to bring about what scrap dealers point out as more equitable rates east for the movement of scrap.

Great Lakes boats are better equipped than formerly for handling scrap cargoes, it is pointed out. Several now are equipped with boom magnets, and others are to

be fitted out in this way, it is understood.

The feasibility of shipping scrap from Chicago to Buffalo is being given the most serious consideration. It is pointed out that Buffalo has difficulty in obtaining adequate supplies, that the price in that market would be favorable under ordinary circumstances for the movement of scrap from Chicago, and that Buffalo steelworks consumers of scrap buy many grades which find no market in the Chicago district as straight grades. Scrap for some time has been moved by Great Lakes vessel to Buffalo from Duluth and Detroit. This tonnage has been heavy in the past several years.

January Lake Levels

The United States lake survey reports the monthly mean stages of the Great Lakes for the month of January as follows:

Lakes	Feet above mean sea level
Superior	602.18
Michigan-Huron	578.72
St. Clair	574.04
Erie	571.26
Ontario	246.04

Lake Superior is 0.14 foot lower than in December and it was 0.74 foot higher than the January stage of a year ago. Lakes Michigan-Huron were 0.06 foot lower than in December and they were 0.52 foot higher than the January stage of a year ago. Lake Erie was 0.35 foot lower than in December and it was 0.15 foot higher than the January stage of a year ago, 0.04 foot below the average stage of January of the last ten years. Lake Ontario was 0.39 foot higher than in December and it was 0.76 foot higher than the January stage of a year ago, and 0.96 foot above the average stage of January of the last ten years.

Undergoing Repairs

The lake freighters CAPT. THOMAS WILSON and the steamer CORALIA went to the shipyards for drydocking and repairs, the first to the American Ship Building Co. at Lorain, O., and the other to the Great Lakes Engineering Works, River Rouge, Mich.

The diesel-electric canal freighter TWIN CITIES and the steamer BAY

STATE drydocked recently at the River Rouge plant of the Great Lakes Engineering Works to undergo repairs. Surveys indicated that the TWIN CITIES will have 27 plates renewed. BAY STATE went in for a general overhauling and for some machinery repairs. The carferry MAITLAND No. 1 which had been ice-bound for ten days in Lake Erie went into the Great Lakes Engineering dry dock at Ashtabula, O. It was found that 18 plates will have to be renewed, the result of an old accident.

Lake Carriers School

The Lake Carriers association on Feb. 8 gave a dinner at the Hotel Cleveland to the graduates in the Engineering and Navigation school which is supported by the association.

This was the twelfth annual dinner and George A. Marr, secretary of the Lake Carriers' association, presided as toastmaster. The speakers included L. C. Sabin, vice president of the association; Dr. M. R. Shie of the Marine hospital staff; David Gaehr, principal of the engineering department; Capt. R. W. England and United States Steamboat Inspectors Silas Hunter and Thomas W. Gould.

Towing Company Meeting

A stockholders' meeting of the Great Lakes Towing Co. was held in New York on Feb. 1. All directors were re-elected. The directors are, Harry Coulby, S. L. Mather, T. F. Newman, G. A. Tomlinson, Fayette F. Brown, Charles L. Hutchinson, J. S. Ashley, and H. E. Gilpin, all of Cleveland, and L. M. Bowers, Binghamton, N. Y.; J. J. Boland, Buffalo, N. Y.; James Davidson, Bay City, Mich.; H. S. Wilkinson, Syracuse, N. Y., and J. C. Evans, Buffalo.

Officers Are Re-elected

The annual meeting of the Detroit & Cleveland Navigation Co. was held in Detroit, Feb. 1, at the office of the company. A. A. Schantz was re-elected president; James T. McMillan, vice president and treasurer; A. C. Angell, vice president, and James R. Coulter, secretary and assistant treasurer. The directors elected were: A. A. Schantz, Emery W. Clark, J. R. Coulter, J. T. McMillan, David Carter, A. C. Angell and George C. Hendrie.

C. L. Perkins, for many years superintendent, was appointed assistant general manager. W. K. Muir succeeds Mr. Perkins as superintendent

and George B. Wright was appointed freight traffic manager.

Sell Two Vessels

The Boland and Cornelius Co., Buffalo, Great Lakes vessel operators, on Feb. 4 sold the steamers, G. N. WILSON and M. A. REEB, to the Valley Camp Steamship Co. The fleet of the Valley Camp Co. now consists of 11 bulk cargo vessels and two self-unloaders. The G. N. WILSON is 402 feet long on the keel, 51-foot beam and 28-foot deep. She was built in 1901. The M. A. REEB, built in 1903, is 360 feet in length on the keel, 50 feet in beam and has a depth of 28 feet. The WILSON has a capacity of 7000 tons and the REEB a capacity of 5800 tons.

J. A. Paisley, head of the Valley Camp company, is also interested in extensive coal operations in West Virginia. It is therefore possible for the company to obtain fairly regular upbound cargoes of coal.

Made Traffic Manager

W. S. Jenks, vice president of the Western Transit Co., announced recently the appointment of H. B. Smith as traffic manager in charge of Lake Erie ports. Mr. Smith was formerly with the Cleveland & Buffalo Transit Co. He will make his headquarters in Detroit. This company is steadily increasing its automobile transportation on the Great Lakes. With the western railroads it has an arrangement of joint and combination through rates including lake, reaching practically all points, even as far as the Pacific coast.

Becomes Passenger Agent

James T. McMillan, vice president and general manager of the Detroit and Cleveland Navigation Co., has announced the promotion of E. H. McCracken to general passenger agent of the line. Mr. McCracken, formerly connected with eastern railroads, first became associated with the Detroit & Cleveland lines in 1919 as general eastern agent, going to Detroit in 1926 as acting general passenger agent.

Winter weather on the Great Lakes caused little interference with winter boat schedules. On the lower lakes harbor ice was not sufficient to impair regular shipping activity. Winter shipping at various points has been augmented by motor truck feeder lines operated by some of the transportation lines.

The directors of the Great Lakes Dredge & Dock Co., Cleveland, were re-elected at the annual stockholders' meeting held in Jersey City, N. J., Feb. 6.

W. O. Holmes of Chicago was elected Great Lakes business manager for the Marine Engineers Beneficial association at the national convention which convened in Washington, D. C., Feb. 13 to 18.

Thomas Wakefield has been appointed marine service engineer for the Garratt-Callahan Co., Chicago, manufacturer of boiler compound. He will arrange for local distribution of this product at Great Lakes ports.

Obituaries

Capt. C. L. Allen

Capt. C. L. Allen, son of Christopher C. Allen, a shipmaster of the old days on the Great Lakes, died at Cleveland Feb. 21 at the age of 56. He began his career on the Great Lakes under the guidance of his father and was invariably referred to in those days as "Young Captain" Allen. His introduction to a seafaring life was ominous, shipping at the age of 17 on the CHARLES J. SHEFFIELD of which his father was captain on the last trip she ever made.

After sailing on the lakes for some years and after his father's death, Captain Allen opened a ship supply house. He later sold out to become manager of the retail department of the Upson-Walton ship chandlery. He served as secretary of the Shipmasters Lodge No. 4. The cause of his death was pneumonia. He leaves four sisters and three brothers.

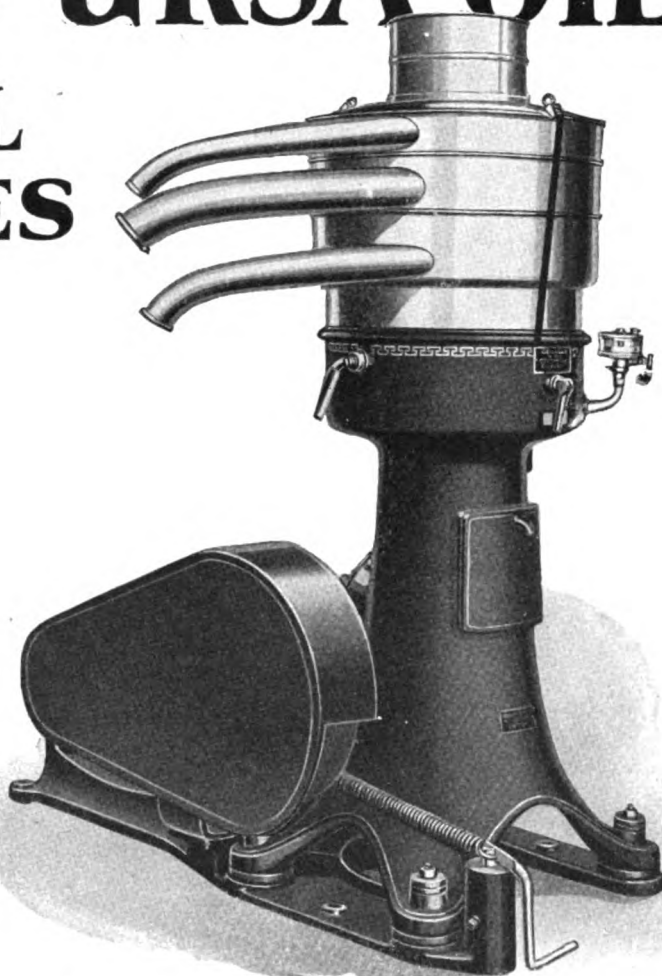
Capt. W. E. Chilson

Capt. Willis Edmund Chilson, who was Buffalo superintendent for Pickands, Mather & Co., Cleveland, died at Buffalo Feb. 20. He had been ill one year. Captain Chilson was widely known throughout the Great Lakes. He had been connected with lake transportation for his entire life and his father before him was a sailing vessel captain and owner. He started his career afloat as a sailor with the same firm he was associated with at his death. He became a captain and later was appointed as superintendent at Duluth. He had been at his post in Buffalo for the last 25 years. One of his outstanding achievements was his work to obtain a high level bridge over the Niagara river.

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R. L. Ireland 1868-1928

Robert Livingston Ireland, one time member of M. A. Hanna & Co., and vice president of the American Ship Building Co., Cleveland, was found dead in his apartment at the Hotel Seymour, New York City, Feb. 17, with four bullet wounds in his body. The case was pronounced suicide by Dr. Charles Cassasa, assistant medical police examiner.

Mr. Ireland was 60 years old and had been in poor health for considerable time. He was born at Strat-

ford, Conn. and was graduated from Yale in 1890. He then entered the employ of the Cleveland Hardware Co., Cleveland.

Two years later he organized the Hackney Bicycle Co. but soon went to the Globe Iron Works, Cleveland. He also was an official of several dry dock and shipping companies, and in 1899 he became vice president of the American Ship Building Co. He resigned that position in 1903 to become a member of the firm of M. A. Hanna & Co. He retired from active business in 1917.

Robert J. Aspin Dies

The death in Florida on Feb. 14 of R. J. Aspin who had been superintendent of the National Tube Co.'s dock at Lorain, O., since its opening in 1899, came as a shock to his large circle of friends among the vessel men, as he was one of the best known and well liked men on the Great Lakes. He conducted his duties in an efficient manner and was always willing to do a service for the ships and the men who called at his dock. He leaves a widow and one daughter.

Ocean Freight Rates

Per 100 Pounds Unless Otherwise Stated

Quotations Corrected to Feb. 20, 1928 on Future Loadings

NOTE: FREIGHT RATES STEADY WITH SLIGHT CHANGE

New York to	Grain	Provisions	Cotton (H. D.)	Flour	General cargo cu. ft.	100 lbs.	††Finished steel	REMARKS Freight Offered	From North Pacific Ports to	Lumber Per m. t.
Liverpool.....	2s 0d†	\$0.60	\$0.40	0.20	\$0.50	\$0.90	\$8.00T***	Quiet	San Francisco.....	\$4.25 to 4.50
London.....	2s 0d†	0.60	0.40	0.20	0.50	0.90	8.00T***	Quiet	South California.....	4.09 to 4.75
Oslo.....	\$0.15	0.45	0.50	0.30	0.42½	0.85	8.00T	Quiet	Hawaiian Islands.....	9.00 to 10.00
Copenhagen....	0.15	0.45	0.50	0.30	0.50	1.00	8.00T	Quiet	New Zealand.....	15.00 to 18.00
Hamburg.....	0.10	0.55	0.45	0.22	0.50	0.90	10.00T	Good	Sydney.....	11.00 to 13.50
Bremen.....	0.12	0.35	0.45	0.22	0.50	0.90	10.00T	Good	Melbourne-Adelaide....	12.00 to 14.00
Rotterdam and Amsterdam....	0.10	0.32½	0.40	0.23	0.40	0.75	9.50T	Fair	Peru-Chile.....	11.75 to 14.00
Antwerp.....	0.10	0.32½	0.20	0.23	0.45	0.80	9.50T	Fair	South Africa.....	20.00 to 22.00
Havre.....	0.09	0.55	0.31	0.30	0.45	0.80	9.00T	Quiet	Cuba.....	16.00 to 17.00
Bordeaux.....	0.07	0.55	0.31	0.30	0.45	0.80	9.00T	Quiet	United Kingdom.....	67s 6d to 70s
Barcelona.....	0.50	0.30	10.00 bags	—12.00T—	10.00T	10.00T	Fair	Baltimore-Boston range..	\$11.00 to 12.00	
Lisbon.....	0.75	0.50	8.00T bags	—23.00T—	8.00T	8.00T	Poor	Florida Range.....	No rates	
Marseilles.....	0.65	0.40	7.00 bags	—23.00T—	8.00T	8.00T	Poor	Buenos Aires.....	12.00 to 15.00	
Genoa.....	0.14	14.25	0.50	9.00	—23.00T—	11.50T	Fair	South America — East Coast.....	14.00 to 17.00	
Naples.....	0.14	14.25	0.50	9.00	—23.00T—	11.50T	Fair	South America — West Coast.....	11.75 to 14.00	
Constantinople..	0.27	20.00T	0.85	0.40½	—24.00T—	11.50T	Slow	China.....	10.00 to 10.50	
Alexandria.....	20.00T	0.85	0.40½	—24.00T—	11.50T	11.50T	Slow	Japan.....	8.50 to 9.50	
Algiers.....	0.75	0.60	0.18T bags	—23.00T—	11.50T	11.50T	Poor	Japan (logs).....	12.00 to 14.00	
Dakar.....	17.00	15.50T	15.50T	—23.00T—	11.50T	11.50T	Fair	Atlantic—Gulf.....	12.00 to 13.00	
Capetown.....	18.00	13.00	13.00	20.00	13.00 to 18.00	13.00 to 18.00	Good			
Buenos Aires...	22.00T	20.00 to 22.00T†	20.00 to 22.00T†	8.00 to 8.80T	8.00 to 8.80T	8.00 to 8.80T	Fair			
*Rio de Janeiro	22.00T	20.00 to 22.00T†	20.00 to 22.00T†	7.00 to 7.70T†	7.00 to 7.70T†	7.00 to 7.70T†	Fair			
Pernambuco.....	22.00T	9.00T	—22.00T—†	9.70T†	9.70T†	9.70T†	Fair			
Havana.....	0.35*	0.50	0.30*	0.61	1.33	10.00	Fair			
Vera Cruz.....	0.25	0.30	0.35	0.25	0.52½	1.05	0.30 to 0.35	Fair		
Valparaiso.....	1.07	0.70	0.70	0.70	10.00T	10.00T	Fair			
San Francisco...	0.35 to 0.70	0.40 to 1.10	0.40 to 1.10	0.25 to 0.30	0.25 to 0.30	0.25 to 0.30	Fair			
Sydney.....	18.00T	18.00T	18.00T	18.00-24.00T	9.00 to 12.—T	9.00 to 12.—T	Very light			
Calcutta.....	0.60	10.00T	—16.00T—	10.00T	10.00T	10.00T	Fair			

Flour and Wheat

U. K. and Continent (gross ton)..... 30s to 32s 6d

Oriental Ports (net tons).. \$3.50 to 4.50

NOTE: Lighterage rates on fuel in New York reduced from 6½ to 5½¢ per barrel. The coal strike in

T—Ton. †Per quarter of 480 lbs. †Landed. ††Heavy products limited in length. *Extra charge for wharfage. **Plus \$0.50 surcharge on all rates to Rio de Janeiro on account of congestion. ***Plus 15 per cent.

Principal Rates To and From United Kingdom

Grain, River Plate to United Kingdom..	22	d	Pig iron, United Kingdom to New York or Philadelphia.....	12	6
Coal, South Wales to Near East.....	10	6	Iron ore, Bilbao to Cardiff.....	5	9
Coal, United Kingdom to Buenos Aires..	12	0	Iron ore, Huelva to Phila. or Balto.....	11	9
Manganese Ore, Poti to Philadelphia....	\$4.00				

Bunker Prices

At New York

	Coal alongside per ton	Fuel oil alongside per barrel	Diesel engine oil alongside per gallon
Apr. 19, 1927..	5@5.50	1.75	5.71c
May 19.....	5.65	1.81½	5.63
June 18.....	5.50	1.71½	5.39
July 19.....	5.65	1.65	5.24
Aug. 19.....	5.50	1.71½	5.15
Sept. 20.....	5.65	1.65	5.04
Oct. 20.....	5.65	1.61	5.13
Nov. 18.....	5.50@5.65	1.46½	5.15
Dec. 20.....	5.35@5.65	1.41½	5.15
Jan. 19.....	5.25@5.60	1.41½	5.15
Feb. 20, 1928..	5.25@5.60	1.40	4.92

At Philadelphia

	Coal trim. in bunk per ton	Fuel oil alongside per barrel	Diesel Eng. oil alongside per gallon
Apr. 19, 1927..	5.15@5.65	1.81@1.86	5.38@5.64c
May 19.....	5.15@5.65	1.75½@1.76	5.14@5.38
June 18.....	5.00@5.25	1.70	5.12@5.14
July 19.....	5.00@5.25	1.65@1.70	5.10@5.12
Aug. 19.....	5.25	1.70@1.71	5.12@5.14
Sept. 20.....	5.25	1.62@1.65	5.12@5.13
Oct. 20.....	5.65	1.56	5.12@5.13
Nov. 18.....	5.20@5.65	1.45@1.46	4.88@5.12
Dec. 20.....	5.20@5.65	1.32@1.35	4.88@5.12
Jan. 19.....	5.25@5.60	1.22@1.25	4.90@5.12
Feb. 20, 1928..	5.25@5.60	1.21@1.25	4.90@5.12

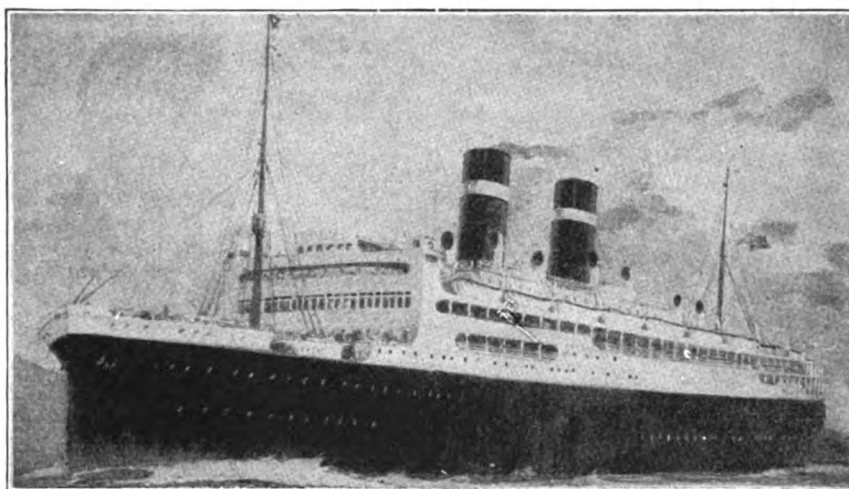
Other Ports

Boston, coal, per ton.....
Boston, oil, f. a. s., per barrel.....
Hampton Roads, coal, per ton, f.o.b., piers.....	\$4.35 to 4.50
Feb. 10—Cardiff, coal, per ton.....	13s 0d
London, coal, per ton.....	—d
Antwerp, coal, per ton.....	19s 0d
Antwerp, Fuel oil, per ton.....	80s 0d
Antwerp, Diesel oil, per ton.....	95s 0d
British ports, Fuel oil.....	75s 0d
British ports, Diesel oil.....	90s 0d

NOTE: Lighterage rates on fuel in New York reduced from 6¼ to 5¼c per barrel. The coal strike in Britain is now settled and freight rates or bunker prices for coal or pig iron are again quoted.

General cargo rates to Havana change daily and are omitted for the time being.

Rates to Calcutta are subject to change without notice. Cotton goes only to Bombay. Landing charge of \$2.00 per freight ton at Valparaiso.



S.S. California

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- □ -

**Built to wear---
"LIKE A
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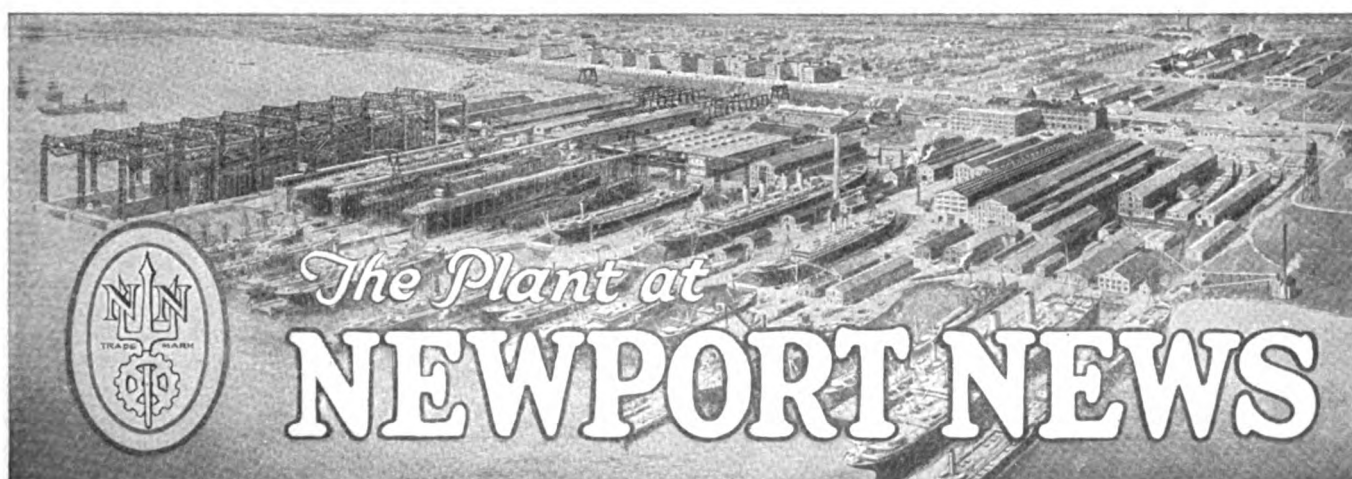
S.S. California, largest merchant ship ever built in the United States, is in every respect comparable to the finest transatlantic ships now in service. She will run between New York and California ports, her turbo-electric drive giving a speed of 18 knots.

Newport News Shipbuilding and Dry Dock Company ranks as one of the finest organizations in the world, in facilities for construction and repairs.

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West Coast Lines Sold

SALE of the three remaining government-owned cargo services on the Pacific coast to three different business organizations was approved by the shipping board Feb. 16. Transfer of the vessels to their new owners will be commenced as soon as sales contracts are signed. Each vessel will be delivered upon its next arrival in port.

By this action the government withdraws entirely from the shipping business on the Pacific coast and that portion of the American merchant marine, which operates from that coast, comes under the ownership of private interests who guarantee to maintain regular services over prescribed routes for a period of five years. In addition to this guarantee the new owners agree to give six months' notice in the event abandonment or curtailment of the liner services is contemplated by them.

The sales to be made in accordance with the above action of the Board are as follows:

American Australia Orient Line

The American Australia Orient line, which operates a fleet of 21 ships out of San Francisco and Los Angeles to ports in Australia, New Zealand, Philippines, China and Japan, is sold to a corporation owned and operated by the Matson Navigation Co. and the American-Hawaiian Steamship Co. The price which will be paid for the vessels and the good will of the line is \$1,981,755.50. The sum of \$58,834.85, or 2½ per cent of the total purchase price was paid when the bid was submitted. An additional 22½ per cent of the purchase price of each ship will be paid on delivery of the vessels. The balance, or 75 per cent of the total will be paid over a period of seven and one-half years with interest on unpaid balances at the rate of 4½

per cent payable semi-annually. Payments to the board will be made annually.

Under its sales agreement, the new owner of this line will maintain monthly sailings from San Francisco to Japan and North China ports; monthly sailings from these American ports to South China, both China routes including Shanghai; monthly sailings from Seattle, Tacoma, San Francisco and Los Angeles to New Zealand ports; and monthly sailings from these four American ports to Australian ports. The service to other ports on both sides of the Pacific will also be provided when the performance of such service will not interfere with maintenance of the regular prescribed schedules.

The ships and goodwill of the Oregon Oriental line, which operates a fleet of 11 ships from Portland, Ore. to Japan and China, is sold to a new corporation headed by K. D. Dawson of Portland, for the sum of \$1,065,000. Mr. Dawson is vice president of the Columbia Pacific Shipping Co., present operator of this line. Payment of the purchase price will be made on the same basis as that for the American Australia Orient line, a certified check for \$26,625.00, or 2½ per cent of the total purchase price having accompanied the bid.

This line under its new ownership will maintain a schedule of monthly sailings from Portland to ports in Japan and North China and semi-monthly sailings from Portland to South China and the Philippine Islands. This line will also give service to other ports when cargo offerings warrant and no interference with maintaining the prescribed schedule will result.

The cargo ships and goodwill of the American Oriental Mail line, which operates a fleet of seven ships out of Puget sound ports to the Orient, is sold to a new corporation to be known as the Tacoma Oriental Steamship Co. for the sum of \$696,906. Payment of this sum will be made on the same basis as that for the other two lines, certified checks aggregating \$17,422.65 having accompanied the bid. The line will maintain monthly sailings from Seattle and Tacoma to Japan and North China and monthly sailings from these ports to South China and Philippine Islands, the port of Shanghai being included in both routes. This line will also give additional service to other ports when cargo offerings warrant and no interference with maintaining the main schedule will result.

From the Editor's Mail

To the Editor:

I want to say that the article in the *MARINE REVIEW*, to which you refer, covers my attitude pretty well. I am glad to note your interest in the merchant marine. I will say this; that I am like a great many other people, reluctant to go into what may seem to be reasonably permanent government ownership and operation of merchant ships, but I am convinced that this is the only way that we can build up and maintain our merchant marine, at least at the present time. Of course, if we get our routes established and get them to paying, there will be more inducement for private parties to take them over, and if, in the meantime, we should pass some legislation that would make it possible for private parties to operate our ships, we could get out of business, but I think we ought to adopt a policy that will give shippers and our industries reasonable assurance that shipping services will be maintained—of the very highest and best character. I am satisfied we cannot pass any legislation at this time in the nature of a subsidy or government aid. Our only recourse is for the government to do this job, and I

think it so vitally important that I am ready to sink all my personal preferences and my objections to government ownership and operation, in behalf of this vital matter.

Wesley L. Jones,
Senator from the
State of Washington.

To the Editor:

In reference to the use of stokers versus pulverized coal, for marine use, be advised that I consider this an open question on water tube boilers but on scotch boilers I feel that the pulverized coal offers by far the more satisfactory solution, as I have not up to the present time seen any stoker that could be considered practical for use in a limited size furnace of a scotch boiler. There is a point that must be considered in the use of pulverized coal versus stokers in a water tube boiler—namely, that a much inferior grade of coal can be used by the pulverized method than can be used on the stokers. This applies not only to the quality of the coal but also to the size of the coal, as an excess of slack is not satisfactory with stokers.

C. J. Jefferson.

GRAVING DOCKS

in Repair and Reconditioning Work



SHIP lengthening involves a very careful operation of cutting a vessel's hull into two parts at a point where it can be patched without losing strength in the structure. Having determined the method of handling the building in of an integral part of the ship, the rivets in certain plates are removed, all connections unfastened, and then one end of the ship is pulled away the correct distance to allow for the lengthening section.

To secure correct alignment under such severe and intricate repair work only the perfect rigidity of a graving dock can be used with any engineering surety.

First settling the vessel upon the solidly set and accurately aligned keel-blocks, the operation becomes purely a marine engineering project and one that can be

A series of talks, of which this is the sixth on the importance of this type of drydock for survey, observation and repair activities.

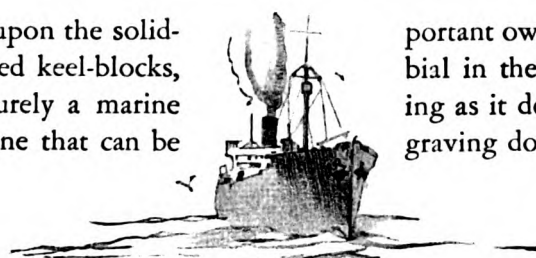
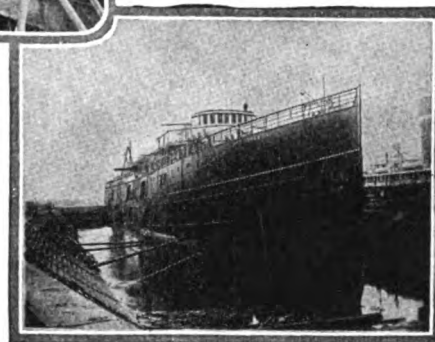
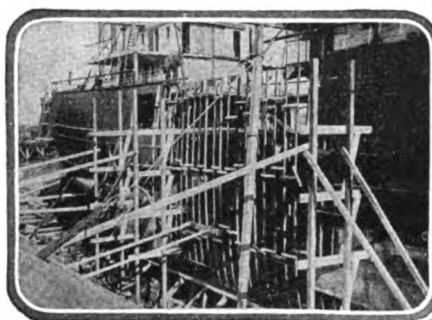
carried on with perfect safety by an experienced organization.

After the division is made a new portion of keel is fitted, and new floors and frames are fabricated. Plates are measured and punched for rivets, and the hull and steel decks joined, thus making the two ends again as one structure.

The S.S. "Howard" was thus cut apart and lengthened, and from the time she entered the graving dock until she left it, with everything rebuilt and all fittings joined, the work was done in the remarkably short time of 14 days in drydock.

Todd experience and ability in handling major repairs and reconditioning work upon large vessels for im-

portant owners and operators is proverbial in the Port of New York including as it does the only privately owned graving docks in the harbor.



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Erie Basin, Brooklyn, N. Y.
Todd Shipbuilding & Dry Dock Co., Inc.
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Twelve Shipways—Twenty-two Floating Docks—Two Graving Docks

MARINE REVIEW—March, 1928

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Shipbuilding Declines

(Continued from Page 27)

built in the United States during the period from Jan. 1, 1922, to Aug. 15, 1927.

Again referring to the tonnage built in the United States and principal shipbuilding countries of the world, from Jan. 1, 1922, to Aug. 15, 1927, an analysis shows that Great Britain has built 14 times as many vessels as the United States; Germany three times as many; Italy almost twice as many; and Holland and France each 30 per cent more.

At the present time the United States stands a poor eighth in the quantity of its total merchant shipbuilding under contract. Great Britain, Germany, Italy, Holland, France, Sweden and Denmark each in the order named, has more tonnage under contract of construction than the United States. When Holland, Sweden and Denmark lead the United States in shipbuilding output a lamentable picture of domestic shipbuilding is presented.

The total tonnage under construction in the United States as reported by Lloyd's, at the end of 1927, is 97,370 gross tons.

Of the 16 steel shipyards existing in 1916 only eight and one new yard started in 1917 are now in operation. Three of these yards are now engaged almost wholly in repair work. In each of the five largest shipyards now building steel vessels the average number of vessels contracted for per year for the last seven years has been less than 2½ vessels.

Included in these figures are five naval contracts placed in 1927. Excluding these contracts the remaining contracts average not more than \$1,000,000 each, an amount of work sufficient to keep employed a staff of not more than 1250 men for each yard, or one-third of the men necessary to operate these yards efficiently. Among the shipyards that have closed are those of William Cramp & Sons Ship & Engine Building Co., and the Harlan plant and the Sparrows Point plant of the Bethlehem Shipbuilding Corp. The first two are the oldest shipyards in the United States and all are famous for building vessels of the highest grade. The closing of eight shipyards and the small volume of work in the remaining yards has reduced the available men on the shipbuilding technical staff of the United States to about one-quarter of the number employed in 1916, and that means that the shipbuilding business is four times

as bad as it was in 1916.

The present condition of the shipbuilding industry in the United States is due to the following:

1. The reduction of armament conference in 1922 almost wholly suspended naval work in the United States and left the private shipyards to depend upon commercial work for their existence;

2. The continued existence of the *idle* shipping board fleet, which consists of about 500 vessels and most of which are not suitable to form a part of a permanent American merchant marine. Because of their unsuitability and their age these vessels can be purchased at prices ranging from \$5 to \$10 per ton. They are purchased by small operators who operate them in competition with established ship lines and who are not likely to build new vessels to replace these low-cost vessels when they have completed their remaining years of usefulness. In the meantime, however, confronted with the competition of these low-price vessels, the established operators can not afford to incur the capital charges necessary for the building of new vessels.

3. Admission to the coastwise trade, under section 22 of the merchant marine act of 1920 of 65 vessels of about 370,000 gross tons resulting in stagnation of new construction for the coastwise trade.

The importance of shipbuilding to the United States is almost universally recognized. It has three important bearings: *First*, as an industry; *second*, as a basis for our merchant marine; and *third*, as a factor for our national defense.

In a merchant ship costing the builder \$1,000,000 about 40 per cent is expended for labor and 60 per cent for materials. These materials are purchased in the United States and consist of steel, castings, copper, brass, lumber, machinery, equipment, supplies and a multitude of other materials, each supplied by contractors other than the shipbuilder and require both labor and material in their production, so that the ultimate cost of a ship is wholly labor except the cost of the raw material from the mines, forests or fields. Eighty per cent of the total cost of a vessel is a fair valuation of the labor involved in its construction, of which one-half is spent in the shipyard and the other half is spent throughout nearly every known industry in our country from coast to coast.

Eighty per cent of a \$1,000,000 cost equals \$800,000 labor cost. At an average earning rate of \$5 per

day, which is none too high, 160,000 labor days or approximately the employment of 500 men for one year is involved in the construction of a vessel costing \$1,000,000.

Each ship as completed and put into operation requires additional American labor and wages during its entire service, first wages to the officers and men and second, to workmen employed to provide supplies and equipment and in the upkeep of the vessel while in operation.

In its relation to the merchant marine and national defense the shipyard serves as a public utility, by being the source from which ships are supplied to both merchant marine and navy.

The merchant marine, the American shipyard, and ship repair yard are co-related. The shipyards depend upon shipowners for their business. Shipowners on the other hand are dependent upon modern and well-organized shipyards to build their ships. It is to the interest of the owner that the shipyards should be busy, because of their dependence upon volume of business for the maintenance of efficient technical and mechanical shipyard staffs, upon which the normal cost of shipbuilding is contingent.

(To be Continued)

Chief Surveyor Resigns

Sir Westcott Abell, K. B. E., has resigned the office of chief ship surveyor to Lloyd's Register of shipping and is starting in business for himself as a consultant.

Sir Westcott has had a distinguished career, having occupied several important positions. Educated at the Royal Naval Engineering College, Keyham, and the Royal Naval College, Greenwich, he became in due course a member of the Royal corps of naval constructors. Afterwards he was successively appointed as professional secretary to the director of naval construction, instructor in naval architecture at the Royal Naval College, and professor of naval architecture in the University of Liverpool. While at Liverpool, he was appointed a member of the board of trade committee on load line, becoming chairman of the technical committee of that body, which dealt primarily with the relation of scantlings to the freeboard question.

In 1914 he was appointed chief ship surveyor to Lloyd's Register of shipping, and in that capacity was responsible for the preparation of the revised rules for the construction and classification of steel ships.

SUN SHIPBUILDING & DRY DOCK COMPANY

Builders of

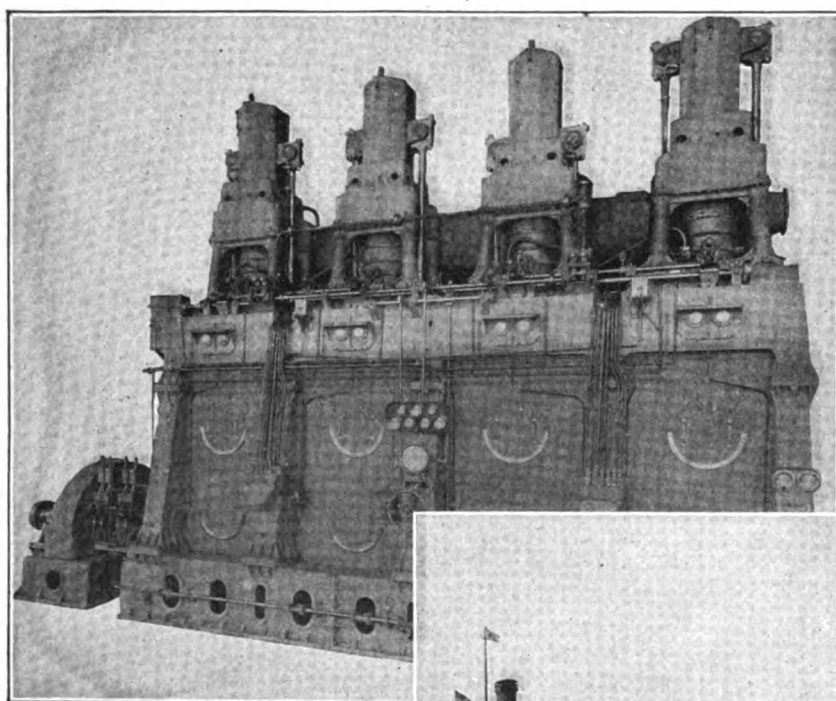


SUN-DOXFORD DIESEL ENGINES

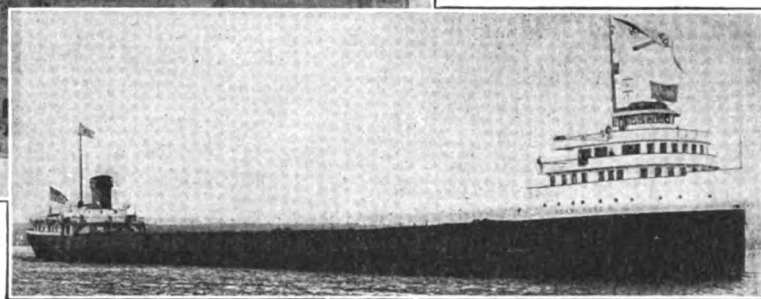


The Engines that Power

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3000 S. H. P. Sun-Doxford Diesel Engines power the two motor-ships, "Henry Ford II" and "Benson Ford".



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Lighting

(From Page 26)

safely be stated that the intrinsic beauty of the lighting gems of the Leviathan constitute a distinct feature of superiority. In visiting aboard these two great vessels, one comes away with the same feeling as is experienced in walking through the Metropolitan art museum and an exhibition of high grade productions of the modernistic school of art. It is the writer's personal feeling that the poise and restraint, the nicety and justice of design, and the masterful craftsmanship which characterize the lighting fixtures of the American ship as contrasted with the unique but less subjectively interesting lighting



Corner of Social Hall—S.S. Leviathan

schemes of the ILE DE FRANCE, leaves the latter rather pale by comparison.

Leviathan's Commander

(Continued from Page 23)

was elevated to the rank of commodore of the United States lines in October, 1926.

During the war Commodore Hartley served as a lieutenant commander and later as a commander in the navy. He was in command of the U. S. S. LOUISVILLE and for the service he performed during this period he received the navy cross, the victory medal, the war medal of the State of New Jersey and some time later the cross of the Legion of Honor from the French government. He is a native of Oswego Falls, N. Y.

Commenting on the resignation of Commodore Hartley, Chairman T. V. O'Connor of the board said, "It was with great regret that the shipping board took action on Commodore Hartley's resignation from his post as master of the LEVIATHAN. The ship is the greatest in the world and Commodore Hartley has measured up to the standards needed for her command. If he were resigning to take command of any other vessel we would wish to refuse to accept it, but since he is retiring from the sea after thirty-five years of good service to the American merchant marine we can do nothing but

wish him Godspeed in his new undertaking."

The following resolution regarding the service of Commodore Herbert Hartley, who resigned as master of the LEVIATHAN, was adopted by the shipping board, Jan. 26:

"Whereas, Commodore Herbert Hartley has tendered his resignation as commander of the United States Steamer LEVIATHAN and as commodore of the United States lines,

"Resolved, that the United States shipping board has learned with deep regret of Commodore Hartley's determination to retire from the sea, thus closing a brilliant career of thirty-five years of continuous service on American ships, both in peace and war, in the North Atlantic ocean, during which service he has not only won the confidence and complete approval of his employers, but the affection and admiration of the many thousands of passengers who have sailed in vessels on which he has served; and the board hereby formally expresses its appreciation of his unflinching devotion to duty and the marked success with which he has discharged his very responsible and trying duties;

"Resolved, that the board expresses to Commodore Hartley its most sincere wishes for his continued success

and happiness in the career he now is entering upon;

"Resolved, that this resolution be spread upon the records of the United States shipping board and a copy thereof be forwarded to Commodore Hartley."

Becomes Chief Surveyor of Lloyd's Register

The general committee of Lloyd's register of shipping at its meeting, Feb. 2, conferred the vacant position of chief ship surveyor to the society upon James Montgomerie, D. Sc., who has for some time held the important post of assistant to the chief ship surveyor and principal surveyor for Scotland. Dr. Montgomerie has had a distinguished professional career.

He served his apprenticeship with Messrs. William Denny & Bros., Dumbarton, where his abilities received every encouragement in connection with the highly varied and scientific work for which that firm is noted, and at the Technical College which he attended at this time he was placed first in the honors class in naval architecture.

He joined the staff at Lloyd's Register as a ship surveyor in 1901, and after a short service in the Glasgow office was transferred to the staff of the chief ship surveyor in London, where he was employed for a time in various scientific investigations rendered necessary by the revision of the freeboard regulations, and subsequently in dealing with the plans of new vessels.

In 1911 Mr. Montgomerie was selected for service in the New York office of the society with authority to pass plans of new vessels to be constructed in the United States. He returned to this country in 1914, and a year or so afterward was appointed principal surveyor for Scotland.

Sounding Equipment

The new \$2,000,000 yacht SAVARONA, owned by R. M. Cadwalader, regarded as one of the finest examples of American shipbuilding, has in its equipment the Fathometer, which gives depth soundings by instantaneous readings of electrical echoes. This device has been installed on W. K. Vanderbilt's ARA, Harry P. Bingham's PAWNEE, Eldridge Johnson's CAROLINE and other yachts and commercial vessels.

Capt. John F. Milliken, secretary-treasurer of the Neptune association, was presented a silver loving cup by members of the West Gulf branch of the association as an appreciation.